**INTRODUCTION TO BIOLOGY**

**TEST 1**

1. **Removal or degradation of pollutants by the living organisms is called?**

- A: Integrated management
- B: Environmental control
- C: Eugenics
- D: Bioremediation

2. **Kidney is an example of?**

- A: Tissue
- B: Organ
- C: Cellular system
- D: Organism

3. **Which branch of biology deals with the structure of cells and their organelles?**

- A: Microbiology
- B: Molecular biology
- C: Parasitology
- D: Human biology

4. **Which of the following shows the correct sequence?**

- A: Observation -> Hypothesis ->Law -> Theory
- B: Hypothesis -> Observation -> Theory -> Law
- C: Hypothesis -> Observation -> Law -> Theory
- D: Observation -> Hypothesis -> Theory -> Law

5. **Population of different species living in the same habitat form a?**

- A: City
- B: Country
- C: Population
- D: Community

6. **Which of the following is a correct order?**

- A: Cell -> Organ -> Tissue -> Organism
- B: Tissue -> Organ -> Cell -> Organism
- C: Cell -> Tissue -> Organ -> Organism
- D: Cell -> Tissue -> Organism -> Organ

7. **A tentative explanation of observations is called?**

- A: Reasoning
- B: Hypothesis
- C: Theory
- D: Law

8. **Which component of the cell is concerned with cell secretion?**

- A: Plasma Membrane
- B: Golgi complex
- C: Cytoskeleton
- D: Mitochondria

**9. Which branch of biology deals with the study of organism in relation to its environment?**

- A: Freshwater biology
- B: Marine biology
- C: Environmental biology
- D: Biotechnology

**10. Starch is an example of?**

- A: Micromolecule
- B: Macromolecule
- C: Mid level molecule
- D: Human molecule

**11. Genetically identical copies of organisms are called?**

- A: Twins
- B: Transgenics
- C: Clones
- D: Identicals

**12. Biotechnology deals with which of the following?**

- A: Use of living organisms in various processes.
- B: Study of protozoa.
- C: Water bodies in oceans.
- D: Evolution.

**13. Study of life in sea and oceans is called?**

- A: Marine biology
- B: Freshwater biology
- C: Sea biology
- D: Microbiology

**14. Necessity of a nutrient to a plant is tested through which of the following methods?**

- A: Hydroponic culture.
- B: Hydrophobic culture.
- C: Integrated disease management.
- D: Biological control.

**15. Polio shots are an example of what type of disease control?**

- A: Drug treatment
- B: Gene therapy
- C: Immunization
- D: Preventive measures

**16. Fresh water biology is the study of?**

- A: Organisms living in fresh water.
- B: Physical parameters of freshwater bodies.
- C: Chemical parameters of fresh water bodies.
- D: All of the above.

**17. Pasteurization is used for which of the following?**

- A: Improving milk nutrients
- B: Purifying milk
- C: Preserving milk
- D: All of the above.

**18. Population of different species (plants and animals) living at the same habitate in the same time form a:**

A: Ecosystem
B: Community
C: Biosphere
D: Microsystem

TEST 2

**1. Which of the following is not a viral disease?**

A: Polio
B: Tetanus
C: Small pox
D: Mumps

**2. Pasteurization technique is widely used for preservation of:**

A: water
B: Milk products
C: Meat
D: Vaccines

**3. Which of the following is used in treating cancer?**

**Antibiotics**

**Radiotherapy**

**Chemotherapy**

A: ii only
B: iii only
C: ii and iii only
D: i, ii and iii

**4. Clones can be produced by which of the following techniques?**

A: Asexual reproduction
B: Tissue culture
C: Both of A and B
D: None of the above.

**5. Which of the following is true about antibiotics?**

A: They kill viruses.
B: They kill bacteria.
C: They kill both viruses and bacteria.
D: They cannot kill viruses and bacteria.

**6. The production of genetically identical copies of organisms by asexual reproduction is called:**

A: Genetic engineering
B: Cloning
C: Integrated disease management
D: Hydroponic culture technique

**7. The part of body which forms structural and functional unit and is composed of more than one tissue is called:**

A: Organelle
B: Organ
C: Organ system
D: Whole organism

**8. A method in which pests are destroyed by using some living organisms or natural enemies is called:**

- A: Integrated disease management
- B: Bilogical control
- C: Pasteurization
- D: Genetic engineering

**9. Which of the following statement is correct?**

- A: Complexity of organ systems in the animals is more than that in the plants.
- B: Complexity of organ systems in the animals is less than that in the plants.
- C: Complexity of organ systems in the animals is same as that in the plants.
- D: Complexity of organ systems in the animals may be more or less than that in the plants.

**10. Which of the following has the highest number of known species?**

- A: Insects
- B: Animals
- C: Plants
- D: Protozoa

**11. Which of the following statement is true?**

- A: Prokaryotes have limited number of organelles in their cytoplasm.
- B: Prokaryotes have a large number of organelles in their cytoplasm.
- C: Eukaryotes have limited number of organelles in their cytoplasm.
- D: Both Prokaryotes and Eukaryotes have roughly equal number of organelles in their cells.

**12. Irrefutable theory is called?**

- A: Observation
- B: Hypothesis
- C: Deduction
- D: Law

**13. First vaccination was developed using which of the following virus?**

- A: Small pox virus
- B: Cowpox virus
- C: Polio virus
- D: Yellow fever virus

**14. Use of bacteria in milk products is an example of which branch of biology?**

- A: Microbiology
- B: Biotechnology
- C: Parasitology
- D: Molecular biology

**15. Chemicals produced by microoragnisms which are capable of destroying the growth of microbes are called:**

- A: Antigen
- B: Biocidal
- C: Antibiotics
- D: Antiseptics

**16. Communal life of humans is studied in which branch of biology?**

- A: Human biology
- B: Social biology
- C: Environmental biology
- D: All of the above

**17. Roughly how many species are currently known to science?**

- A: 500,000
- B: 900,000
- C: 2,000,000
- D: 2,500,000

**18. The study of how the H1N1 virus is transmitted is done under which branch of biology?**

- A: Microbiology
- B: Molecular biology
- C: Parasitology
- D: Biotechnology

**19. Which of the following is the most accurate definition of population?**

- A: A group of living organisms living in the same place at different times.
- B: A group of living organisms living in the same place at the same time.
- C: A group of living organisms of the same species living in the same place at the same time.
- D: A group of humans living in the same place at the same time.

**20. Which of the following carbon containing molecule is an example of inorganic compound?**

- A: $CO_2$
- B: $C_6H_6$
- C: $C_6H_{12}O_6$
- D: They are all organic as they all contain C.

TEST 3

**1. A large community determined by tropical rain forest is an example of?**

- A: Population
- B: Community
- C: Species
- D: Biome

**2. "All animals have four legs. So any living organism with four legs is an animal." The reasoning is an example of?**

- A: Hypothesis
- B: Deductive reasoning
- C: Inductive reasoning
- D: Wrong reasoning

**3. An unbroken series of species arranged from ancestor to descendant is called?**

- A: Heredity linkage
- B: Biome lineage
- C: Evolution series
- D: Phyletic lineage

**4. Which of the following statement is most accurate?**

- A: Animals may reproduce naturally by cloning.
- B: Plants never reproduce naturally by cloning.
- C: Insects never reproduce naturally by cloning.
- D: Insects and plants may reproduce naturally by cloning.

**5. Morphology is a sub-branch of which of the following?**

A: Social biology
B: Biotechnology
C: Microbiology
D: Human biology

**6. A large regional community primarily determined by climate is called?**

A: Population
B: Community
C: Biome
D: All of the above

**7. Hammer fish was brought into the Michigan lake to eat up fast growing algae. This is an example of which of the following?**

A: Integrated disease management
B: Biological control
C: Hydrophonic control
D: Hydrophobic control

**8. Which six elements account for 99% of the human body mass?**

A: O, C, H, Ca, P, Na
B: O, C, H, Ca, N, Na
C: O, C, H, N, Na, I
D: O, C, H, N, Ca, P

**9. Jigambu is a strange viral infection. Which of the following treatment / prevention would you recommend against Jigambu?**

A: Antibiotics
B: Chemotherapy
C: Radio therapy
D: Vaccination

**10. The number of commonly occuring bioelements is?**

A: 16
B: 20
C: 25
D: 28

**11. In gene therapy, normal genes are inserted into the host through which of the following?**

A: Bone marrow cells
B: Red blood cells
C: White blood cells
D: Muscle tissues

**12. "Eating greasy food cause pimples". This is an example of?**

A: Hypothesis
B: Theory
C: Law
D: None of the above

**13. Which of the following is the most abundant element in the human body?**

A: Oxygen
B: Carbon
C: Hydroden
D: Calcium

**14. Which of the following is related to cloning?**

Replacement of the nucleus of an early embryo with a new nucleus of the same species

Division of early embryo into two or more embryos

Replacing genes in the host cell

- A: i and ii only
- B: i and iii only
- C: ii and iii only
- D: i, ii and iii

**15. "Crocodile is a reptile and can survive in water. So all reptiles can survive in water." This statement is an example of?**

- A: Theory
- B: Deductive reasoning
- C: Inductive reasoning
- D: Wrong reasoning

TEST 4

**1. Microbiology is a branch of biology that deals with?**

- A: Cells and their organelles.
- B: Interaction between organism and its organic and inorganic environment.
- C: Study of parasites.
- D: Study of protozoa, bacteria, viruses etc.

**2. What kind of association is seen in lichens?**

- A: Commensalism
- B: Parasitism
- C: Mutualism
- D: Predation

CELL BIOLOGY
TEST 1

**1. The smallest independent unit of life is known as:**

- A: Cell
- B: Bacterial colony
- C: Chloroplast
- D: DNA

**2. Which of the following are colorless?**

- A: Chloroplasts
- B: Chlorophyll
- C: Chromoplasts
- D: Leucoplasts

**3. A chromosome is composed of which of the following?**

- A: DNA only
- B: DNA and RNA
- C: DNA, RNA and Proteins
- D: DNA and Proteins

**4. What is cytokinesis ?**

- A: Separation of chromosomes
- B: Division of nucleus
- C: Division of whole cell
- D: Movement of whole cell

**5. Plasma membrane is chemically composed of:**

- A: Lipids and proteins
- B: Lipids and carbohydrates
- C: Phospholipids only
- D: Glycoproteins

**6. Chiasmata formation takes place during the process which is known as?**

- A: Crossing over
- B: Attachment
- C: Pairing
- D: Leptotene

**7. Uncontrolled division occurs in which cells?**

- A: Early embryonic cells
- B: Cancer cells
- C: Healing cells
- D: Growth and development cells

**8. As per early cell theorists, which of the following was not a basic part of the cell?**

- A: Nucleus
- B: Cytoplasm
- C: Plasma membrane
- D: Cell wall

**9. Peptidoglycan and murein is special or distinctive feature of cell wall in :**

- A: Algae
- B: Fungi
- C: Bacteria
- D: Plants

**10. Cell membranes take in materials by infolding through a process called?**

- A: Active transport
- B: Passive transport
- C: Selective permitivity
- D: Endocytosis

**11. Which of the following structures is ansent in higher plants and found in animals cells?**

- A: Cytoskeleton
- B: Mitochondria
- C: Cytoplasm
- D: Centriole

**12. Which of the following is a prokaryote?**

- A: Bacteria
- B: Fungi
- C: Protista
- D: Plants

**13. Identify the wrong statment regarding crossing over ?**

- A: It takes place during pachytene.
- B: Reshuffling of genetic material takes place.
- C: Sister chromatids exchange their segments.
- D: Involves chiasmata formation.

**14. Animal and plant cells are distinguished by which of the following feature?**

- A: Nucleus
- B: Cell wall
- C: Mitochondrion
- D: Golgi apparatus

**15. What is the number of chromosomes in humans?**

- A: 42
- B: 44
- C: 46
- D: 48

**16. Prophase I in meiosis is furthure subdivide into how many phases ?**

- A: 3
- B: 4
- C: 5
- D: 6

**17. In mitochondria, a small knob like structures called F particles are present in :**

- A: Outer membrane
- B: Inner membrane
- C: Outer compartment
- D: Inner compartment

**18. What is the primary difference between Prokaryotes and Eukaryotes?**

- A: Prokaryotes have cell wall and Eukaryotes lack it
- B: Prokaryotes have a tail and Eukaryotes lack it
- C: Prokaryotes do not have mitochondiron while Eukaryotes have it
- D: Prokaryotes do not have distint nuclues and Eukaryotes have a distint nuclues.

**19. Which of the following is the wrong statment regarding apoptosis ?**

- A: It take place in absence of survival signals.
- B: Content of cell are not relased in apoptosis.
- C: It is associated with inflamation.
- D: It involve the death of cell during embroygenesis.

**20. Which one of the following is a down syndrome ?**

- A: Trisomy 21
- B: Trisomy 13
- C: Trisomy 18
- D: Trisomy 22

TEST 2

**1. What is the main difference between the molecules of chlorophyll and haem?**

A: Chlorophyll has potassium while haem has iron as the central atom.

B: Chlorophyll has magnesium while haem has calcium as the central atom.

C: Chlorophyll has iron while haem has potassium as the central atom.

D: Chlorophyll has magnesium while haem has iron as the central atom.

**2. Which scientist discovered the presence of nucleus in the cell?**

A: Robert Brown

B: Lorenz Oken

C: Robert Hooke

D: Jean Baptist

**3. Cell wall has how many layers?**

A: 2

B: 3

C: 4

D: 5

**4. The _____ model of plasma membrane suggests that protein are embedded in lipid bilayer:**

A: Unit membrane

B: Ultracentrifuge

C: Permeable

D: Fluid mosaic

**5. The inner foldings of mitochondria are called?**

A: Microfilaments

B: Cisternae

C: Cristae

D: Grana

**6. Cell membrane is chemically composed of which of the following?**

A: Lipids and carbohydrates

B: Lipids and proteins

C: Proteins and carbohydrates

D: Proteins only

**7. Separation of homologous chromosomes occurs in which one of the following phase of mitosis?**

A: Prophase

B: Metaphase

C: Anaphase

D: Telophase

**8. In which phase of cell division, the metabolic activity of nucleus is high?**

A: Mitosis

B: Meiosis

C: Interphase

D: Cell cycle

**9. Plastids in the plant cells have how many types?**

A: 2

B: 3

C: 4

D: 5

**10. During metaphase, what number of fibers each kinetochore gets ?**

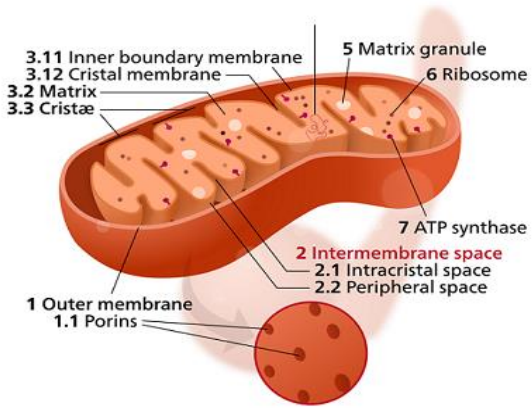
A: Two fibers from each poles

B: Two fibers one from each pole

C: One fiber from single pole

D: Variable number of fibers

**11. The following figure show which cell organelle?**




- A: Mitochondria
- B: Vacuole
- C: Endoplasmic Reticulum
- D: Gogi apparatus

**12. Cell theory was established based on the work by which of the following scientists?**

- A: Robert Brown and Robert Hooke
- B: Theodor Schwann and Schleiden
- C: Lorenz Oken
- D: Jean Baptist

**13. Which organelle is bounded by two membranes?**

- A: Ribosomes
- B: Mitochondrion
- C: Lysosome
- D: Nucleolus

**14. The interior of chloroplast is divided into heterogenous structure, embedded in matrix , known as ?**

- A: Grana
- B: Stroma
- C: Thylakoid
- D: Cisternae

**15. Identify the worng statment regarding meiosis?**

- A: Number of chromosomes reduce to haif.
- B: It take palce in haploid cells.
- C: Four daughter cells are produced after meiosis.
- D: It take place during spore formation in plants.

**16. Ribosomes are assembled in which part of the cell?**

- A: Gogi apparatus
- B: Endoplasmic reticulum
- C: Mitochondrion
- D: Nucleolus

**17. What is the approximate duration of $G_1$ phase in the human cell cycle ?**

- A: 8 hours
- B: 9 hours
- C: 10 hours
- D: 11 hours

**18. In which stage of interphase, there is increase in cell size and many biochemicals are formed?**

A: $G_1$ phase
B: $G_2$ phase
C: S phase
D: C phase

**19. Centrioles are made up of _____ microtubules.**

A: 9
B: 3
C: 12
D: 27

**20. What are the changes that takes place during telophase ?**

A: Unfolding of chromosomes.
B: Mitotic apparatus disorganizes nuclear membrane.
C: Reorganization of nuceloli.
D: All of the above.

TEST 3

**1. Which of the following organelle play an important role in the formation of cilia?**

A: Cytoskeleton
B: Ribosomes
C: Lysosomes
D: Centriole

**2. Ribosomes exist in two forms, either attached to RER or freely dispersed in the?**

A: Tonoplast
B: Golgi bodies
C: SER
D: Cytoplasm

**3. During cytokinesis a contractile ring is formed from which of the following?**

A: Actin and Tubulin.
B: Myosin and Actin.
C: Tubulin and Myosin
D: Actin only

**4. Microtubules are made up of which one of the following protein ?**

A: Actin
B: Tubulin
C: Myosin
D: All of above

**5. Which of the following syndrome's involves the missing of one X chromosome ?**

A: Down
B: Turner
C: Jacobs
D: Patau

**6. What is the main function of parenchymatous cells in plants?**

A: Transport water
B: Translocate food
C: Provide support
D: Store surplus food

**7. Which of the following in NOT a tenet of cell theory?**

A: All living organisms are composed of one or more cells.
B: The cell is the most basic unit of life.

C: All cells arise from pre-existing, living cells.

D: Individual cells have a sexual reproduction.

**8. Which of the following is termed as the factory of protein synthesis?**

A: Nucloelus

B: Rough endoplasmic reticulum

C: Ribosomes

D: Mitochondrion

**9. Identify the correct statement regarding prophase?**

A: Nuclear envelop disappears and nucleoli becomes more prominent.

B: Nucleoli disappaers and mitotic apparatus becomes disorganised.

C: Nuclear envelop disappears and cytoplasm becomes less viscous.

D: Mitotic apparatus is organised and cytoplasm become more viscous.

**10. Prokaryotic cell wall has which of the following major difference from the other cell walls?**

A: It lacks chitin.

B: It lacks waxes.

C: It lacks lignin.

D: It lacks cellulose.

**11. Which of the following organelle is present in plant cells but not in the animal cells?**

A: Peroxisome

B: Mitochondrion

C: Golgi apparatus

D: Glyoxysomes

**12. Mental retardation, short stature, broad faces and squint eyes are the symptoms of ?**

A: Down's syndrome

B: Klinefelter's syndrome

C: Turner's syndrome

D: XYZ syndrome

**13. During which phase of meiosis paired chromosomes repel each other and begin to separate ?**

A: Leptotene

B: Zygotene

C: Pachytene

D: Diplotene

**14. Which is /are the functions of mitotic apparatus ?**

A: To capture chromosomes

B: To align chromosomes

C: To separate chromosomes

D: All of the above

**15. Which of the following is not a basic component of the chloroplast?**

A: Envelope

B: Grana

C: Stroma

D: Thylakoid

**16. Which of the following shall most easily pass through the plasma membrane?**

A: Lipid soluble substances

B: Ions

C: Lipids insoluble substance

D: Gas molecules

**17. Extensive metabolic activity takes place in which one of the following phase of the cell cycle ?**

A: $G_1$ phase

B: $G_o$ phase

C: $G_2$ phase

D: S phase

**18. Which of the following is responsible for phagocytosis in the cells?**

A: Gogi apparatus

B: Lysosomes

C: Ribosomes

D: Rough ER

**19. What is the main purpose of Sclerenchymatous cells in plants?**

A: Conduct water

B: Translocate food

C: Give support

D: Store surplus food

**20. How many microtubules are present in the cylindrical array of centriole?**

A: 5

B: 7

C: 9

D: 11

TEST 4

**1. The inner membrane of mitochondria is folded to form finger like structure called ?**

A: Cristae

B: Vesicle

C: Matrix

D: Cisternae

**2. In Down's syndrome which one of the following pair fails to seggregate?**

A: 7

B: 19

C: 18

D: 21

**3. Which one of the following microtubules get attached to chromosome during karyokinesis?**

A: Kinetochore microtubules

B: Polar microtubules

C: Astral microtubules

D: All of the above

**4. Which of the following statement is true?**

A: Only active transport requires energy.

B: Only passive transport requires energy.

C: Both active and passive transport required energy.

D: Neither active nor passive transport requires energy.

**5. Which of the following are present in the underground parts of the plant?**

A: Leucoplasts

B: Chromoplasts

C: Chloroplasts

D: None of the above.

**6. Which of the following statement is true?**

- A: Prokaryotes have smaller sized ribosomes as compared to eukaryotes.
- B: Prokaryotes have larger sized ribosomes as compared to eukaryotes.
- C: Prokaryotes and eukaryotes have equal sized ribosomes.
- D: There is no relationship between the ribosomes of prokaryotes and eukaryotes.

**7. Which of the following is not a characteristic of malignent cell ?**

- A: High nucleus to cytoplasmic ratio.
- B: Prominent nucleoli.
- C: Highly differentiated.
- D: Large number of mitosis.

**8. The function of nucleolus is to make:**

- A: Rdna
- B: RNA
- C: Ribosomes
- D: Chromosomes

**9. The most critical phase of mitosis which ensures equal distribution of chromatids in daughter cells is :**

- A: Prophase
- B: Metaphase
- C: Anaphase
- D: Telophase

**10. Genomic variations and modifications results from which of the following?**

- A: Synapsis and crossing over.
- B: Synapsis and chromosomal non-disjunction.
- C: Crossing over and random assortment of chromosomes.
- D: Chromosomal non-disjunction and breakage.

**11. 44 autosomes + XXY is a genotype of which one of the following syndrome ?**

- A: Down
- B: Patau
- C: Klinefelter
- D: Jacobs

**12. Endoplasmic recticulum contains a system of flattened membrane bounded sacs which are named as:**

- A: Cristae
- B: Marks
- C: Tubules
- D: Cisternae

**13. Golgi apparatus converts proteins and lipids into glycoproteins and glycolipids by adding?**

- A: Minerals
- B: $Mg^{+2}$ ions
- C: Carbohydrates
- D: All of the above.

**14. Identify the correct statement regarding mitosis in plants ?**

- A: Spindle fibers arise from centriols.
- B: A contractile rings is formed during cytokinesis.

C: Shapes of plant cell does not change greatly.

D: Phragmoplast does not get formed.

**15. How many triplets of microtubules are present in a centriole?**

A: 10

B: 8

C: 9

D: 7

**16. Granulocytes are :**

A: Monocytes, eosinophils, basophils

B: Eosinophils, basophils, neutrophils

C: Basophils, Macrophages, neutrophils

D: Monocytes, macrophages , basophils

**17. By using histologic stain of DNA, a network of very fine threads can be visualized during the prophase of mitosis. The network is called?**

A: Mitotic apparatus

B: Chromosomes

C: Chromatin

D: Hyperchromasia

**18. Which of the following imparts colors to the plants other than green?**

A: Chloroplasts

B: Leucoplasts

C: Chromoplasts

D: All of the above.

**19. How many sets of microtubules arise from each pair of centriole during karyokinesis?**

A: 2

B: 3

C: 4

D: 5

**20. Plastids are only found in the:**

A: Animals

B: Animals and plants

C: Plants

D: Viruses

## BIOLOGICAL MOLECULES
## TEST 1

**1. The branch of biology that deals with the study of inorganic and organic molecules that make up the body of living orgnism is called?**

A: Biotechnology

B: Anatomy

C: Biomechanics

D: Biochemistry

**2. Which of the following biological molecule is the richest source of energy? (comparing gram to gram)**

A: Carbohydrates

B: Fats

C: Minerals

D: Protein

**3. About 170 types amino acids are known, however, most of the proteins are made up of _____ types of amino acids?**

- A: 108
- B: 64
- C: 32
- D: 20

**4. The covalent bond formed between two monosacchrides is called ?**

- A: Glycosidic bond
- B: Hydrogen bond
- C: Peptide bond
- D: Disulphide bond

**5. Which of these is not a nucleotide base found in the DNA?**

- A: Uracil
- B: Adenine
- C: Guanine
- D: Thymine

**6. Energy absorbed in order to change water from liquid to gas is called?**

- A: Latent heat of fusion
- B: High surface tension
- C: Heat of vaporization
- D: High heat capacity

**7. What is the valency of carbon?**

- A: Monovalent.
- B: Bivalent.
- C: Trivalent.
- D: Tetravalent.

**8. Which of the following is true about a chemical "buffer"?**

- A: It can donate a hydrogen+ when solution becomes too basic
- B: It can absorb hydrogen+ when solution becomes too acidic
- C: It is utilized in living systems to maintain correct pH
- D: All of the above are correct

**9. In an amino acid in which the R-group is a hydrogen, the amino acid will be ?**

- A: Alanine
- B: Glycine
- C: Leusine
- D: Valine

**10. A fatty acid is a compound having a chain of carbon atoms with?**

- A: An acid group at both ends
- B: An acid group at one end
- C: An amino group
- D: An amino group at both ends

**11. Which class of molecules is the major component of the cell membrane?**

- A: Phospholipids
- B: Cellulose
- C: Proteins
- D: Triglycerides

**12. The sum of all the chemical reaction that occurs in the body is known as?**

- A: Anabolism
- B: Metabolism

C: Catabolism

D: Canabalism

**13. Dehydration and hydrolysis reactions involve removing or adding which of the following to macromolecule subunits?**

A: C and H

B: CH and $NH_2$

C: -COOH and H

D: OH and H

**14. Which of the following base pair combination is absent in DNA?**

A: A-T

B: T-A

C: C-G

D: A-U

**15. When amino acids in a polypeptide chain are arranged in a spiral manner, it is called?**

A: Primary structure

B: Secondary structure

C: Tertiary structure

D: Quaternary structure

**16. The amount of heat that must be absorbed or lost by 1g of a substance to change its temperature by 1 C° is known as?**

A: Specific heat

B: Heat of vaporization

C: Enthalpy

D: Entropy

**17. One of the pyrimidine bases absent in DNA is?**

A: Uracil

B: Thymine

C: Cytosine

D: Adenine

**18. Which of the following is an organic molecule?**

A: $CaCO_3$

B: $CO_2$

C: $C_6H_{12}O_6$

D: All of the above.

**19. Fatty acids are the organic compounds containing hydrogen, oxygen and one of the following are ?**

A: Carboxylic

B: Amino

C: Acyl

D: Sucrose

**20. Electrolytes that release hydrogen ions in water are called?**

A: Acids

B: Bases

C: Amphoterics

D: Lipids

TEST 2

**1. What kind of sugar is found in the RNA?**

A: Fructose

B: Galactose

C: Deoxyribose

D: Ribose

**2. Natural monosaccharide contain how many carbon atoms?**

- A: 3-5
- B: 4-8
- C: 3-7
- D: 5-13

**3. Amino acid in which R-group is hydrogen is:**

- A: Alanine
- B: Valine
- C: Leucine
- D: Glycine

**4. The bond formed between glucose and fructose to form sucrose is ?**

- A: 1,4 glycosidic linkage
- B: 1,2 glycosidic linkage
- C: 1,6 glycosidic linkage
- D: 1,3 glycosidic linkage

**5. The synthesis of RNA from the DNA is called?**

- A: Transcription.
- B: Replication.
- C: Duplication.
- D: Transformation.

**6. Nucleic acids are the polymers composed of monomer units known as?**

- A: Amino acids
- B: Nucleosides
- C: Nucleotides
- D: Nitrogenous bases

**7. Which product is the energy storage in the vertebrate, liver and muscles of the animals?**

- A: Cellulose
- B: Chitin
- C: Glycogen
- D: Fructose

**8. Which of the following is an unsaturated fatty acid?**

- A: Butyric acid.
- B: Palmitic acid.
- C: Acetic acid.
- D: Oleic acid

**9. Which of the following statements about amino acids is correct?**

- A: Amino acids are classified according to the structures and properties of their side chains.
- B: Amino acids are uncharged at neutral pH.
- C: Amino acids in proteins are mainly in the D-configuration.
- D: Twenty four amino acids are commonly used in protein synthesis.

**10. Which of the following is a keto sugar?**

- A: Glyceraldehyde
- B: Ribose
- C: Dihydroxy acetone
- D: Glucose

**11. Lipids are found in the human body as which of the following?**

- A: Triglyceride
- B: Phospholipid

C: Cholestrol

D: All of these

**12. Each of the 20 naturally occuring amino acids has a different?**

A: $NH_2$ group

B: -COOH group

C: -OH group

D: R group

**13. Lactose is present in which of the following?**

A: Sugar cane

B: Milk

C: Egg

D: Fruits

**14. Which type of RNA acts as a machinery for the synthesis of proteins?**

A: mRNA

B: tRNA

C: rRNA

D: All of the above.

**15. The two chains of DNA are held together by what type of bonds?**

A: Ionic bonds

B: Colavent bonds

C: Disulphide bonds

D: Hydrogen bonds

**16. The step of protein synthesis in which RNA is synthesized by the DNA is called?**

A: Transduction

B: Translation

C: Transformation

D: Transcription

**17. Which of the following is the most abundant molecule in the living cells?**

A: Lipids

B: Carbohydrates

C: Water

D: Proteins

**18. Myosin is a _____ type of protein.**

A: Intermediate

B: Simple

C: Globular

D: Fibrous

**19. The four nitrogenous bases which form the code words for DNA language are?**

A: ACTU

B: UTAC

C: AGTU

D: AGCT

**20. _____ is most abundant in nature.**

A: Cellulose

B: Waxes

C: Glycerole

D: Starch

TEST 3

**1. Which of the following type of RNAs is the major portion of RNA in the cell?**

A: mRNA

B: tRNA

- C: rRNA
- D: They are all in the same quantity.

**2. Which of the following is true about haemoglobin?**

- A: It is a globular protein.
- B: It has quaternary level of protein structure.
- C: It has haem units.
- D: All of the above.

**3. Typically a cell has how many tRNAs?**

- A: 5
- B: 10
- C: 15
- D: 20

**4. Which of the following is an asymmetrical lipid molecules with a hydrophilic head and a hydrophobic tail, with a phosphate group in place of one of the three fatty acid chains?**

- A: Wax
- B: Terpenoid
- C: Steroid
- D: Phospholipid

**5. Which of the following is not a function of lipids?**

- A: Long term energy storage.
- B: Insulation against atmospheric heat and cold.
- C: Water proofing.
- D: Enzymes

**6. Which one of the following carbohydrates is the sweetest in taste?**

- A: Glucose
- B: Fructose
- C: Lactose
- D: Maltose

**7. Which one of the following types of bond is principally concerned in maintaining the alpha-helix shape of secondary protein structure?**

- A: Disulphide bonds.
- B: Ester bonds.
- C: Hydrogen bonds.
- D: Peptide bonds.

**8. The number and sequence of amino acids in the proteins refers to which of the following structure?**

- A: Primary structure**.**
- B: Secondary structure.
- C: Tertiary structure.
- D: Quaternary structure.

**9. Acylglycerols like fats and oils are esters formed by condensation reaction between:**

- A: Fatty acids and water
- B: Fatty acids and glucose
- C: Fatty acids and alcohol
- D: Fatty acids and phosphates

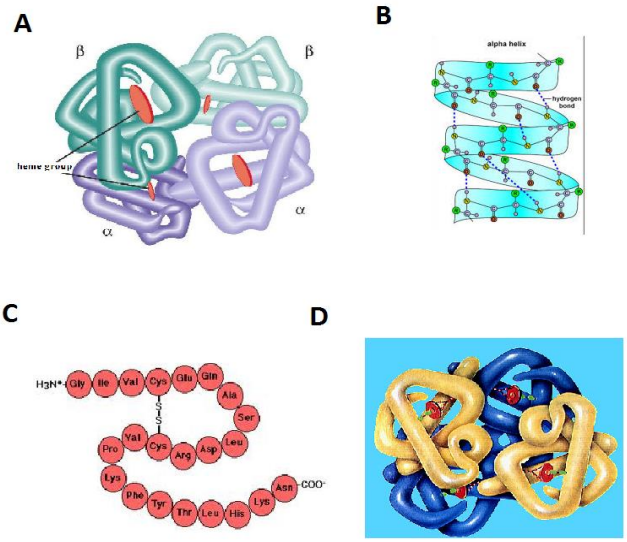
**10. Carbon combines with nitrogen in amino acid linkages to form which of the following?**

- A: Ester bonds
- B: Glycosidic bonds
- C: Peptide bonds
- D: Hydrogen bonds

**11. The combination of a pentose sugar with a base results in a compound known as ?**

- A: Nucleotide
- B: Nucleic acid
- C: Nucleoside
- D: Polynucleotide

**12. Which of the following is the primary structure of protein?**




- A: A
- B: B
- C: C
- D: D

**13. Which one are intermediate between respiration and photosynthesis both?**

- A: Glyceraldehyde and Dihydroxyacetone
- B: Ribose and Heptolose
- C: Glucose and Glactose
- D: Fructose and Ribulose

**14. Which of the following statement is correct?**

- A: DNA is only present in the nuclei of the cells.
- B: RNA is only present in the nuclei of the cells.
- C: DNA occurs in chromosomes while RNA is present in nucleolus, ribosomes and cytosol.
- D: RNA occurs in chromosomes while DNA is present in nucleolus, ribosomes and cytosol.

**15. The bond formed between carboxylic acid and alcohol is called?**

- A: Ester bond
- B: Amide bond
- C: Phosphate bond
- D: Ionic bond

**16. Which disaccharide is found in the sugar cane?**

- A: Maltose
- B: Sucrose
- C: Lactose
- D: Isomaltose

**17. Which bond is present in the tertiary structure of proteins?**

A: Ionic Bond
B: Hydrogen bond.
C: Disulfide bond.
D: All of the above.

**18. Which one of the following is not a monosaccharide?**

A: Glyceraldehyde.
B: Ribose.
C: Lactose.
D: Glucose.

**19. Which of the following is not a monosaccharide?**

A: Sucrose.
B: Maltose
C: Lactose.
D: All of the above.

**20. The lipids made up of simple repeating isoprenoid units are called?**

A: Phospholipids
B: Acylglycerols
C: Waxes
D: Terpenoids

TEST 4

**1. Which of the following is an unsaturated fatty acid?**

A: Acetic acid
B: Butyric acid
C: Palmitic acid
D: Oelic acid

**2. Which of the following is purine?**

A: Cytosine
B: Thymine
C: Uracil
D: Guanine

**3. The most abundant carbohydrate in the nature is?**

A: Glycogen
B: Chitin
C: Lignin
D: Cellulose

**4. Which of the following lipids is a mixture of long chain alkanes with odd number of Carbons and alcohols, ketones and esters?**

A: Acylglycerols
B: Terpenoids
C: Waxes
D: Phospholipids

**5. Steroids are classified as?**

A: Carbohydrates
B: Lipids
C: Proteins
D: Nucleic acids

**6. Animals obtain carbohydrates mainly from which of the following?**

A: Starch
B: Glucose.
C: Glycogen.
D: Sucrose.

**7. What is the difference between the two types of starch, amylose and amylopectin?**

A: Amylose starches have unbranched chains of glucose and amylopectin starches have branched chains.

B: Amylose starches are soluble in hot water and amylopectin starches are insoluble.

C: Amylose starches have chains of glucose and amylopectin starches have chains of fructose.

D: Both A and B.

**8. How many nitrogenous bases are there in total for the nucleic acids?**

A: Four

B: Five

C: Six

D: Seven

**9. Which of the following shows a monosaccharide, a disaccharide and a polysaccharide in the sequence?**

A: Starch ; Glucose ; Sucrose

B: Starch ; Sucrose; Glucose

C: Sucrose; Glucose ; Starch

D: Glucose; Sucrose; Starch

**10. Which one is an example of unsaturated fatty acids :**

A: Butyric acid

B: Oleic acid

C: Palmitic acid

D: Acetic acid

**11. The primary structure of protein is the?**

A: Twisting and turning of the polypeptide.

B: Number and sequence of amino acids in the protein molecule.

C: Specific orientation of polypeptide in space.

D: Both A and B

**12. tRNA transfer which of the following?**

A: Lipids

B: Carbohydrates

C: Amino acids

D: All of the above.

**13. Which form of RNA delivers the information from DNA to be used in making a protein?**

A: Messenger RNA

B: Ribosomal RNA

C: Transfer RNA

D: All options are correct.

**14. Carbohydrates are organic molecules and contain three elements:**

A: Carbon,water and oxygen

B: Carbon,hydrogen,oxygen

C: Carbon,sulphur,hydrogen

D: Carbon,calcium, hydrogen

**15. Monosachride are major compoenents of :**

A: DNA, ATP, Ribulose bisphophate and cysteine

B: DNA, NAD and Insulin

C: DNA, NADP, ATP and ribulose bisphosphate

D: DNA, RNA and myosin

**16. When a protein undergoes a hydrolysis reaction the end products are?**

A: Amino acids
B: Monosaccharides
C: Fatty acids
D: Nucleotides

**17. The covalent bond between two monosaccharides is called?**

A: Peptide bond.
B: Covalent bond.
C: Glycosidic bond.
D: Ester bond.

**18. Which of the structures in the list includes all others in the list?**

A: Nucleic acid
B: Nucleotide
C: Purine
D: Nitrogenous base

**19. The most abundant compound in the living orgnisms that makes up the two third of the weight of the adults is?**

A: Water
B: Carbohydrates
C: Lipids
D: Proteins

**20. Which one of the following is called the medium of life?**

A: Water.
B: Lymph.
C: Blood.
D: Carbon.

ENZYMES
TEST 1

**1. All coenzymes are derived from?**

A: Proteins
B: Carbohydrates
C: Metal ions
D: Vitamins

**2. All coenzymes are derived from:**

A: Proteins
B: Nucleic acid
C: Vitamins
D: Carbohydrates

**3. Enzymes increase the rate of reaction by ?**

A: Increasing temperature
B: Decreasing pH
C: Decreasing activation energy
D: Increasing activation energy

**4. Which molecular strauctureof enzyme is essential for activity of enzyme?**

A: Quaternary structure
B: Primary structure
C: Secondary structure
D: Tertiary structure

**5. Which molecular strauctureof enzyme is essential for activity of enzyme?**

A: Quaternary structure
B: Primary structure
C: Secondary structure
D: Tertiary structure

**6. Which one of the following is a competitive inhibitor?**

- A: Glucose
- B: Fumerate
- C: Succinic acid
- D: Malonate

**7. Optimum temperature for most of the human enzymes is?**

- A: 37 degree centigrades
- B: 41 degree centigrades
- C: 45 degree centigrades
- D: 25 degree centigrade

**8. Enzymes are primarily?**

- A: Proteins
- B: Lipids
- C: Carbohydrates
- D: None of the above.

**9. Some enzymes require a non protein part for its efficient functioning. This helper non protein part is called :**

- A: Accelator
- B: Cofactor
- C: Prosthetic group
- D: Apoenzyme

**10. What is the main effect of the inhibitors on the enzyme catalytic activity?**

- A: The enhances the speed of reaction.
- B: They increase the availability of active sites on the enzyme.
- C: They reduce the reaction rate.
- D: None of the above.

**11. An enzyme and substrate reacts through a special feature or site present on enzyme known as ?**

- A: Building site
- B: Catalytic site
- C: Active site
- D: Inhibition site

**12. What is the effect of the increase in the substrate concentration on the enzymatic reaction?**

- A: It increases the rate of reaction.
- B: It decreases the rate of reaction.
- C: It has no effect on the rate of reaction.
- D: It increases the rate of reaction but upto a certain limit.

**13. The enzymes which act as molecular scissors in recombinant technology are :**

- A: Exonucleases
- B: Endonucleases
- C: Polymerases
- D: All of the above

**14. Doubling the enzyme concentration has what effect on the rate of reaction?**

- A: Rate of reaction remains same.
- B: Rate of reaction doubles.
- C: Rate of reaction increase by three times.

D: Rate of reaction increase by four times.

**15. If enzyme concentration is continuously increased, what is the effect on the rate of reaction?**

A: It increases continuously.
B: There is no increase in the rate of reaction.
C: It increases to a certain level after that it will remain constant.
D: It increases to a certain level after that it decreases.

**16. Active site of an enzyme has how many definite regions?**

A: 2
B: 3
C: 4
D: 5

**17. Enzymes catalytic activity is limited to a small portion called?**

A: Co-factor
B: Coenzyme
C: Active site
D: Passive site

TEST 2

**1. A cofactor tightly bound to the enzyme on permanent basis is called :**

A: Activator
B: Co-enzyme
C: Apo-enzyme
D: Prosthetic group

**2. Enzyme succinate dehydrogenase coverts succinate into:**

A: Malate
B: Malonic acid
C: Fumarate
D: Citrate

**3. The view that active site of an enzyme is flexible and when a substrate combines with it, cause changes in enzyme structure is known as:**

A: Lock and key model
B: Induce fit model
C: Sliding filament model
D: Specificity model

**4. The type of inhibition in which inhibitors has no structural similarity to substrate and combines with enzyme at other than the active site are called?**

A: Irreversible inhibitors
B: Reversible inhibitors
C: Competitive inhibitors
D: Non competitive inhibitors

**5. Non-protein part of the enzyme which is essential for the proper functioning of the enzyme is called?**

A: Active site
B: Passive site
C: Coenzyme
D: Cofactor

**6. Who proposed the Lock and Key model to visualize the enzyme substrate interaction?**

A: Koshland

B: Meldeev

C: Emil Fischer

D: Robert Fisk

**7. Which of the following statement regarding enzymes is NOT true?**

A: Some enzyme have metal ions as co-factors.

B: Enzymes are compounds of hundreds of amino acids.

C: Enzymes have globular structure.

D: Enzymes alter the nature and properties of end products.

**8. If detachable co-factor is an inorganic ion then it is designated as:**

A: Co enzyme

B: Prosthetic group

C: Activator

D: Holoenzyme

**9. The competitive inhibitors have structural similarity with?**

A: Activator

B: Co-enzyme

C: Prosthetic group

D: Apo-enzyme

**10. The non protein part of enzyme which is covalently and permanently bound is called ?**

A: Prosthetic group

B: Co factor

C: Co enzyme

D: Activator

**11. The inhibitors that bind tightly and permanently to enzymes and destroy their globular structure and catalytic activity are:**

A: Irreversible inhibitors

B: Reversible inhibitors

C: Competitive inhibitors

D: Non-competitive inhibitors

**12. An enzyme with its prosthetic group removed is called?**

A: Co-enzyme

B: Holoenzyme

C: Apoenzyme

D: Activator

**13. Co-factors have which of the following function?**

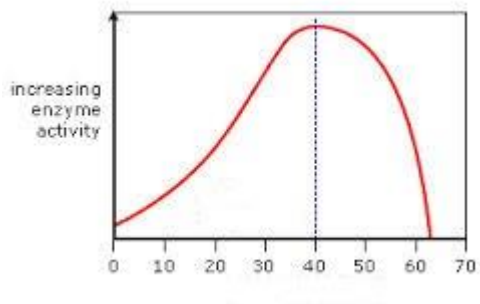
A: Act as a bridge between the enzyme and the substrate.

B: Provide a source of chemical energy.

C: Contributes directly to the chemical reaction.

D: All of the above.

**14. The graph below shows the effect of which of the following on the enzyme reaction?**




- A: Enzyme concentration.
- B: Substrate concentration.
- C: Temperature
- D: pH

TEST 3

**1. Which of the following form a weak linkage with the enzyme?**

- A: Irreversible inhibitor.
- B: Reversible inhibitor.
- C: Prosthetic group.
- D: Cofactor.

**2. What is the optimum pH for enzyme Pepsin?**

- A: 1.00
- B: 2.00
- C: 4.50
- D: 5.50

**3. If the cofactor is covalently bonded to enzyme then it will be called:**

- A: Coenzyme
- B: Activator
- C: Apoenzyme
- D: Prosthetic group

**4. Which of the following describes the prosthetic group i an enzyme?**

- A: Loosely bound co-enzymes.
- B: Tightly bound co-enzymes.
- C: A detachable organic co-factor.
- D: A detachable inorganic co-factor.

**5. Pepsin is produced in an inactive pepsinogen form because?**

- A: This is the only possible way to produce it.
- B: It is not required to work in the early stages of its life.
- C: It is less energy intensive to produce pepsinogen than pepsin.
- D: It does not digest the internal organ cells.

**6. What is the main property of non-competitive inhibitors?**

- A: They do not reduce the rate of enzyme reaction.
- B: The form the enzyme inhibitor complex at the site other than the active site.
- C: The form the enzyme inhibitor complex on the active site.
- D: They are always protein in nature.

**7. Optimum pH value for working of pancreatic lipase is:**

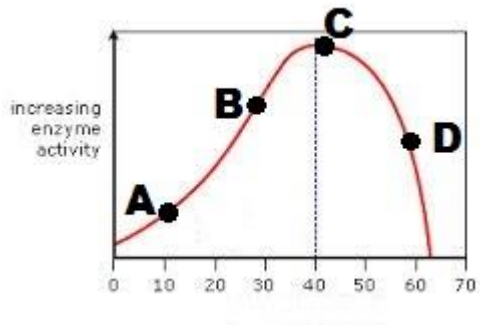
A: 4.5

B: 7.6

C: 9.0

D: 2.0

**8. The graph below is between the enzymatic rate of reaction and temperature. What is the point in the graph where denaturing starts happening?**




A: A

B: B

C: C

D: D

**9. In which of the following cases, the enzyme shall not perform its function?**

A: Enzyme missing its co-factor.

B: Apoenzyme

C: Non-availability of activator.

D: All of the above.

**10. Enzymatic reactions are most sensitive to which of the following?**

A: Concentration of enzyme.

B: Concentration of substrate.

C: Temperature

D: pH

**11. What is the main deviation of induced fit model from the lock and key model?**

A: Induced fit model proposed that enzymes active site is a rigid structure.

B: Induced fit model proposed that the activation site is much small than the one proposed by the lock and fit model.

C: Induced fit model proposed that the substrate can change the structure of the enzyme.

D: All of the above.

**12. Which of the following statement defines the activator in an enzyme?**

A: An organic permanent co-factor.

B: An inorganic permanent co-factor.

C: An organic detachable co-factor.

D: An inorganic detachable co-factor.

BIOENERGETICS

TEST 1

**1. Photosystem II has chlorophyll a molecules in it which absorbs maximum light of _____ wavelength.**

A: 650nm

B: 680nm

C: 700nm

D: 720nm

**2. Which one is the most abundant protein on earth?**

- A: Keratin
- B: Rubisco
- C: Thrombin
- D: None of these

**3. How many types of photosystems are there?**

- A: 1
- B: 2
- C: 3
- D: 4

**4. Photosynthesis is a _____ process.**

- A: Oxidation
- B: Reduction
- C: Redox
- D: Ionic

**5. What is required during pyruvate -------> Acetyl CoA ?**

- A: $NAD^+$
- B: FAD
- C: FADH
- D: NADPH

**6. Magnesium is an important nutrient ion in green plants as it is an essential component of:**

- A: Cell sap
- B: Protein
- C: Chlorophyll
- D: Glucose

**7. Carriers of respiratory chain are located on :**

- A: Matrix of mitochondria
- B: Inner membrane of mitochondria
- C: Outer membrane of mitochondria
- D: Cytoplasmic matrix

**8. During light dependent reactions, assimilating power in the form _____ is formed.**

- A: $NADPH_2$
- B: ATP
- C: $NADPH + H^+$
- D: All of these

**9. The respiratory chain is also known as:**

- A: Electron transport system
- B: Intermediate chain
- C: Carrying chain
- D: All of these

**10. Calvin cycle is a:**

- A: Light dependent cycle
- B: Light independent cycle
- C: Non-cyclic
- D: Occurs in chloroplast

**11. The folds present in the mitochondria are called?**

- A: Cisternae
- B: F- foldings
- C: Cristae
- D: Cilia

**12. Which chlorophyll is the most abundant one?**

A: Chlorophyll a
B: Chlorophyll b
C: Chlorophyll c
D: Chlorophyll d

**13. The reactions of photosynthesis consist of how many parts?**

A: 1
B: 2
C: 3
D: 4

**14. In glycolysis, glycerate 1,3 bisphosphate is converted into glycerate-3-phosphate by losing _____ phosphate molecules.**

A: 1
B: 2
C: 3
D: 4

**15. Before entering into Kreb's cycle, the pyruate is first decarboxylated and oxidized into ?**

A: Alpha ketoglutaric acid
B: Citric acid
C: Glyceric acid
D: Acetic acid

**16. Where does the dark reactions take place ?**

A: Thylakoids
B: Lumen
C: Grana
D: Stroma

**17. Mitochondria is also known as:**

A: Controlling center of the cell
B: Nucleus of the cell
C: Transporting medium
D: Power house of the cell

**18. Malate is oxidized by _____ to oxaloacetate in Krebs cycle.**

A: ATP
B: NAD
C: FAD
D: NADPH

TEST 2

**1. If lactic acid builds up in thigh muscles it cause tiredness and pain. this condition is called :**

A: Muscle fatigue
B: Tetany
C: Cramps
D: Oxygen debt in muscles

**2. The electrons from Ferredoxin (Fd) are transfered to NADP with the help of?**

A: Electron transport chain
B: Fd reductase
C: NADP reductase
D: All of these

**3. Chlorophyll b and carotenoids are also called?**

A: Normal pigments
B: Necessary pigments
C: Accessory pigments
D: Common pigments

**4. The first action spectrum was given while working on _____?**

- A: Yeast
- B: Leaves
- C: Spirogyra
- D: Plant buds

**5. Every molecule of NADH, fed into electron chain produces:**

- A: 6 ATP
- B: 4ATP
- C: 2 ATP
- D: 3 ATP

**6. Final acceptor of electrons in repiratory chain is:**

- A: Cytochrome-A
- B: Oxygen
- C: Cytochrome-$A_3$
- D: Cytochrome-C

**7. The citrate is formed in the first step of kreb's cycle, what is the number of carbon atoms in the citrate?**

- A: 2
- B: 4
- C: 5
- D: 6

**8. What is the other name for calvin cycle?**

- A: Z-scheme
- B: Calvin chain
- C: $C_3$-pathway
- D: $C_2$ - pathway

**9. When the chloroplast run low on ATP, which photosystem is involved?**

- A: Photosystem **I**
- B: Photosystem **II**
- C: Both Photosystem **I** and **II**
- D: Photosystem **III**

**10. Oxidative phosphorylation, synthesis of ATP in presence of oxygen occurs in ?**

- A: All types of cells
- B: All anaerobic cells
- C: All primitive cells
- D: All aerobic cells

**11. What is the colour for chlorophyll a?**

- A: Violet-blue
- B: Yellow-green
- C: Blue-green
- D: Orange-red

**12. What does $NADPH_2$ provides during the dark reactions?**

- A: Energized electron only
- B: $H^+$ only
- C: Both Energized electron and $H^+$
- D: $H_2$

**13. Light can only work in chloroplast if it is absorbed. Which one of the following absorbs the visible light?**

- A: Thylakoids
- B: Stroma
- C: Pigments
- D: All of these

**14. Which of the following oxidation reduction substance does not take part in respiratory chain:**

A: Coenzyme Q
B: FAD
C: Cytochromes enzymes
D: Molecular oxygen

**15. Total NADH formed by one glucose molecule during the Kreb's cycle are:**

A: 3
B: 6
C: 8
D: 18

**16. What will be the net input when the net output in the calvin cycle is 1 G3P ( a carbohydrate )?**

A: $2CO_2$
B: $3CO_2$
C: $4CO_2$
D: $1CO_2$

**17. A system of membranes present in the stroma forms an elaborate interconnected set of flat, disc like sacs , which are called?**

A: Lumen
B: Thylakoid interior space
C: Thylakoids
D: Grana

**18. What is the correct order for the transfer of energy in case of chlorophylls?**

A: $Carotenoids \rightarrow Chlorophyll_{\mathbf{a}}$
B: $Carotenoids \rightarrow Chlorophyll_{\mathbf{a}} \rightarrow Chlorophyll_{\mathbf{b}}$
C: $Carotenoids \rightarrow Chlorophyll_{\mathbf{b}} \rightarrow Chlorophyll_{\mathbf{a}}$
D: $Chlorophyll_{\mathbf{a}} \rightarrow Carotenoids \rightarrow Chlorophyll_{\mathbf{b}}$

**19. The water splitting step of the photosynthesis is called _____?**

A: Cyclic Phosphorylation
B: Non- cyclic Phosphorylation
C: Photolysis
D: None of these

**20. The head of chlorophyll is is a complex porphyrin ring. This porphyrin ring is made up of?**

A: 2 Pyrrole rings
B: 2 Phytols
C: 4 Pyrrole rings
D: 4 Phytols

TEST 3

**1. What kind of wavelengths are mostly absorbed by chlorophylls?**

A: Green
B: Orange-red
C: Yellow
D: Indigo

**2. The oxidative phase of glycolysis is also called?**

A: Energy investment phase
B: Energy pay off phase
C: Preparatory phase
D: All of these

**3. The electron transport chain of photosystem II does not contain:**

A: Fd
B: Two cytochrome complex

C: Pq

D: Pc

**4. How many stages of cellular respiration occur in the mitochondria?**

A: 1

B: 2

C: 3

D: 4

**5. How many ATP's are used for the synthesis of one carbohydrate molecule?**

A: 3

B: 4

C: 6

D: 9

**6. The end product of anaerobic respiration in humans and other animals is:**

A: Pyruvic acid

B: Ethanol

C: Lactic acid

D: Glucose

**7. The pathway in which the electrons passes through both the photosystems is called?**

A: Cyclic phosphorylation

B: Chemiosmosis

C: Z-scheme

D: Calvin cycle

**8. One molecule of $FADH_2$ is produced in Kreb's cycle during conversion of:**

A: Succinate ------> Fumarate

B: Fumarate -------> Malate

C: Malate -> Oxaloacetate

D: α-ketoglutarate -----> Succinate

**9. The dense fluid-filled region present in the double membrane envelope of the chloroplast, containing most of the enzymes required to produce carbohydrates, is called ?**

A: Thylakoids

B: Granum

C: Stroma

D: Lumen

**10. Calvin cycle begins when a molecule of $CO_2$ reacts with a highly reactive five carbon sugar ?**

A: RUBP

B: G3P

C: Rubisco

D: Ribulose phosphate

**11. The acetyl Coenzyme A on entering the kreb's cycle reacts with _____ to form 6 carbon citrate.**

A: Malate

B: Citrate

C: Fumarate

D: Oxaloacetate

**12. In electron transport chain, the electron from NADH and $FADH_2$are passed to :**

A: Cytochrome a

B: Cytochrome $a_2$

C: Co-enzyme c

D: Co-enzyme Q

**13. Puyruvate is the end product of glycolysis, enters from cytosol to mitochondrial matrix, which is oxidated into _____ producing $CO_2$ as by product?**

A: Acetyl CoA

B: Citerate

C: NAD

D: FAD

**14. The columns of thylakoid sacs present in the stroma are called?**

A: Thylakoids

B: Lumen

C: Thylids

D: Grana

**15. Which of the following is correct when equal intensities of light are given. There is more photosynthesis in?**

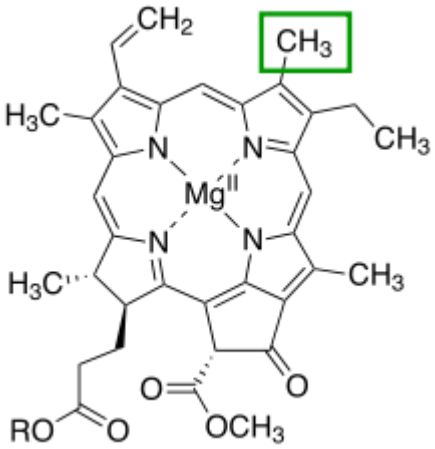
A: Red parts than in the blue part

B: Blue part than in the red part

C: Both have same rate

D: Blue part always has the highest rate

**16. The head given in the diagram is for which type of chlorophyll?**




A: chlorophyll a

B: chlorophyll b

C: chlorophyll c

D: All have same head.

**17. The long hydrocarbon tail of the chlorophyll is also called:**

A: Pyrrol

B: Phytol

C: Porphyrin

D: All of these

**18. The fluid filled thylakoid interior space present in the thylakoid membranes is also called?**

A: Stroma

B: Lumen

C: Granum

D: Thylids

**19. The absorption spectrum of chlorophyll shows that absorption is maximum in which parts of the spectrum?**

A: Blue and green parts

B: Red and green parts

C: Blue and red parts

D: Yellow and green parts

**20. Where does the molecular mechanism of oxidative phophorylation takes place?**

A: Cytosol

B: Stroma

C: Inner membrane of mitochondrial matrix

D: Outer membrane of mitochondrial matrix

1. **During the respiration process prior to entering into a mitochondrion a glucose molecule is split into _____?**

A: Pyruvic acid
B: Lactic acid
C: Ethyl alcohol
D: It remains as glucose

2. **In both cyclic and non-cyclic photophosphorylation, the mechanism for ATP synthesis is ?**

A: Calvin chain
B: Z-scheme
C: Chemiosmosis
D: Photosynthesis

3. **The radiations most important to life are visible light. It's wavelengths ranges from?**

A: 300-700nm
B: 350-750nm
C: 380-750nm
D: 390-700nm

4. **In the respiratory chain NADH is oxidized by ?**

A: Molecular oxygen
B: FAD
C: Cytochrome a
D: Coenzyme Q

5. **In which phase of glycolysis, the breakdown of glucose occurs and energy is expended?**

A: Preparatory phase
B: Oxidative phase
C: Reduction phase
D: Citric acid cycle

6. **Which one of the following is the energy conversion phase in the process of photosynthesis?**

A: Light dependent reaction
B: Light independent reaction
C: Both are energy conversion phases
D: Calvin cycle

7. **The complete breakdown of glucose molecule occurs in:**

A: Alcoholic fermentation
B: Aerobic respiration
C: Lactic acid fermentation
D: All of these

8. **Haem portion of the haemoglobin is a:**

A: Pyrrole ring
B: Phytol tail
C: Porphyrin ring
D: Phytol ring

9. **How many ATP's are produced during the reactions of respiratory chain?**

A: 2
B: 3
C: 12
D: 18

10. **The flat, square, light-absorbing hydrophilic part of the chlophyll is its:**

A: Head
B: Tail
C: Branch
D: Mid-area

**11. The flow of electron during the noncyclic phosphorylation is from:**

- A: Photosystem **I** to Photosystem **II**
- B: Photosystem **II** to Photosystem **I**
- C: Photosystem **I** to reaction center
- D: Photosystem **II** to reaction center

**12. In light independant stage of photosynthesis Carbon dioxide combines with _____ to form an unstable 6- carbon intermediate.**

- A: Ribulose Bisphosphate
- B: Hexose Sugar
- C: Glycerate 3-Phosphate
- D: Glyceraldehyde-9-phosphate

**13. What are the products of Lactic acid fermentation of pyruvic acid?**

- A: Ethanol only
- B: $CO_2$ only
- C: Lactic acid only
- D: Both A and B

**14. By which mechanism ATP's are produced in the process of oxidative phosphorylation?**

- A: Phosynthesis
- B: Kreb's cycle
- C: Chemiosmosis
- D: All of these

**15. The special complexes built in thylakoid membranes through which the hydrogen ions move down their gradient to generate ATP are called?**

- A: ATP generators
- B: ATP pumps
- C: Hydrogen pumps
- D: ATP synthase

**16. In respiratory chain Coenzyme Q is oxidized by ?**

- A: Cytochrome a
- B: Cytochrome b
- C: Cytochrome c
- D: Molecular oxygen

**17. Photosystem I has _____ molecule in it and absorbs maximum light of _____ wavelength.**

- A: Chlorophyll a and 680nm
- B: Chlorophyll b and 700nm
- C: Chlorophyll a and 700nm
- D: Chlorophyll c and 700nm

**18. In one phase of krebs cycle, 1 molecule of ATP, 1 molecule of FADH and _____ molecule of NADH is produced?**

- A: 1
- B: 2
- C: 3
- D: 4

**19. The stage of cellular respiration in which Oxygen is not required is?**

- A: Glycolysis
- B: Pyruvate Oxidation
- C: Kreb's cycle
- D: Oxygen transport chain

**20. Oxidative phase of glycolysis starts with dehydrogenation of?**

A: Glyceraldehyde-3-phosphate
B: Glucose
C: Fructose-6-phosphate
D: Glucose-6-phosphate

VIRUS, BACTERIA & FUNGI
TEST 1

**1. What type of bacteria are dependent on their host for nutrition?**

A: Chemosynthetic
B: Saprophytic
C: Parasitic
D: Heterotrophic

**2. The flagella of bacteria are composed of?**

A: Carbohydrate
B: Lipid
C: Tubulin
D: Flagellin

**3. Which of the following is true for Pox-viruses?**

A: It is RNA-enveloped
B: It is DNA-non enveloped
C: It is DNA-enveloped
D: It is DNA-naked Virion

**4. Adhesive pad of fungi penetrate the host with the help of _____?**

A: Mechanical pressure and enzymes
B: Hooks and suckers
C: Softening by enzymes
D: Only by mechanical pressure

**5. A disease in which virus damages the nerves is?**

A: Yellow fever
B: Polio
C: Measles
D: Xerophthalmia

**6. Biological Oxygen Demand (BOD) is a measure of?**

A: Industrial wastes poured into water bodies
B: Extent to which water is polluted with organic compounds
C: Amount of carbon monoxide inseparably combined with hemoglobin
D: Amount of oxygen needed by green plants during night

**7. What is the major cause of hepatitis b ?**

A: Blood Transfusions
B: Blood clotting
C: Absence of fibrinogen
D: Contaminated Salts

**8. Robert Koch was not involved in which of the following?**

A: Preparation of specimen for microscopic examination.
B: Discovery of bacteria that caused anthrax.
C: Development of vaccine for anthrax and cholera.
D: Formulation of germ theory of disease.

**9. During unfavourable condiitons, certain bacteria produce?**

- A: Ribosomes
- B: Plasmids
- C: Mitochondria
- D: Spores

**10. Hepatitis A and E is transmitted most commonly by the contact with_____ from the infected individuals.**

- A: Serum
- B: Blood
- C: Feaces
- D: Saliva

**11. Viruses are can be defined as what kind of parasites?**

- A: Comples parasite
- B: Obligate parasites
- C: Temperate parasites
- D: Autotrophic

**12. Which of the following are a comma shaped bacteria?**

- A: Vibrio
- B: Spirillum
- C: Spirochete
- D: Coccus

**13. Bacteria without any flagella are called?**

- A: Atrichous
- B: Monotrichous
- C: Petritrichous
- D: Lophotrichous

**14. Sometimes the viral DNA detaches from the chromosome of the host and lytic cycle starts. This process is called _____?**

- A: Translation
- B: Transcription
- C: Induction
- D: Transfusion

**15. How many known species of bacteria are there that cause diseases in humans?**

- A: 250
- B: 150
- C: 200
- D: 300

**16. In bacteria dormant, thick-walled, desiccation resistant form developed during the differentiation of vegetative cells is called?**

- A: Exospores
- B: Cysts
- C: Endospores
- D: Zoospores

**17. Which one of the cells are usually affected by HIV?**

- A: T-killer lymphocyte
- B: T-helper lymphocyte
- C: B-plasma cell
- D: B-memory cell

**18. Much of the research on gene expression has been done with E.coli, which inhibits the human intestine. This organism is a/an?**

- A: Plasmid
- B: Virus

C: Bacterium

D: Protozoan

**19. Vibrio is what kind of spiral?**

A: Thin spiral

B: Comma shaped

C: Thick spiral

D: Spherical

**20. The process in which we use physical agents to control bacteria/ microorganism is known as?**

A: Sterilization

B: Immunization

C: Vaccination

D: Pasteurization

TEST 2

**1. Which of the following bacteria cocci are arranged in long chains?**

A: Streptococcus

B: Sarcina

C: Diplococcus

D: Staphylococcus

**2. Which of the following fungus is used to give the flavor, aroma and characteristics color to some cheese?**

A: Yeast

B: Ergot fungi

C: Aspergillus

D: Pencillium

**3. Bacteria ribosomes lie in?**

A: Cytoplasm

B: Capsule

C: Nuclear Membrane

D: Cell wall

**4. Which of the following contain peptidoglycan cell wall?**

A: Penicillium

B: Polytrychum

C: Adiantum

D: Bacterium

**5. Which microscopic entity was found not filterable by Cherles Chamberland?**

A: Bacteria

B: Fungi

C: Virus

D: Algae

**6. Cyanobacteria are :**

A: Photo autotrophic bacteria

B: Chemosynthetic bacteria

C: Saprotrophic bacteria

D: Parasitic bacteria

**7. The process of transfer of genetic material from one bacterium to another is called?**

A: Transduction

B: Conjugation

C: Transformation

D: Recombination

**8. The destruction of all life forms is called?**

A: Vaccination
B: Immunization
C: Sterilization
D: Pasteurization

**9. In HIV viruse, reverse transcriptase enzyme convert single stranded RNA into double stranded viral DNA . This process is called:**

A: Translation
B: Duplication
C: Reverse transcription
D: Replication

**10. The first infectious disease against which an effective method of prevention was developed was of which kind?**

A: Bacterial
B: Viral
C: Amoebic
D: Fungal

**11. Bacteria cannot survive in a highly salted pickle because?**

A: Salt inhibit reproduction
B: Baceria do not get enough light for photosynthesis
C: They become plasmolysed and consequently killed
D: The pickle does not contain nutrients necessary for bacteria to live

**12. Which of the following is a thick and flexibal sprial in the spiral bacteria?**

A: Coccus
B: Spirillum
C: Vibrio
D: Spirochete

**13. Which of the following is present in both Grams positive and Grams negative cell Walls?**

A: An outer membrane.
B: Peptidoglycan.
C: Teichoic acid.
D: Lipopolysaccharides.

**14. HIV is classified as:**

A: Bacteriophage
B: Oncovirus
C: Retrovirus
D: Icosahedrel virus

**15. Antibiotics are produced by fungi and certain bacteria of group:**

A: Oomycetes
B: Ascomycetes
C: Actinomycetes
D: Basidiomycetes

**16. The enzymes involved in viral replication are synthesized?**

A: On the viral ribosome
B: By the host cell
C: On the interior surface of the viral membrane
D: On the interior surface of the viral coat

**17. Which organisms are the indicator of $SO_2$ pollution of air?**

A: Mosses
B: Lichens
C: Mushrooms
D: Puffballs

**18. Which of the following is the most effective protection against the viral infections?**

- A: Disinfectants.
- B: Natural immunity of the host.
- C: Antibiotics.
- D: Microbistatics.

**19. Bacteriophages that induce bacterial cell lysis are called:**

1. A: Temperate phage
2. B: Virulent phage
3. C: Lysogenic phage
4. D: Viroids

**20. Symptoms of AIDS are?**

- A: Pneumonia
- B: Swollen lymph nodes
- C: General loss of immune system
- D: All of the above.

TEST 3

**1. What is the main difference between the cyst and spores in bacteria?**

- A: Only cyst are dormant.
- B: Only cyst are heat resistant.
- C: Only spores are dormant.
- D: Only spores are heat resistant.

**2. The phenomenon of Bacteriophage was first discovered by ?**

- A: Twort
- B: D'Herelle
- C: Stanley
- D: Edward Jenner

**3. Mad cow infection is caused by which of the following micro-organism?**

- A: Virus
- B: Prions
- C: Bacteria
- D: Fungi

**4. Which of the following is an example of rust fungus?**

- A: Phytophthora
- B: Ustilago
- C: Albugo
- D: Puccinia

**5. Some chemosynthetic bacteria use energy obtained from oxidizing which of the following?**

- A: Ammonia
- B: Sulphur
- C: Ferrous Iron
- D: All of the above.

**6. Which of the following bacteria is a bacilli?**

- A: Pneumococcus
- B: Pseudomonas
- C: Vibrio Cholera
- D: Hyphomicribium

**7. Cause of STD that affects mucous membrane of the Urogenital tract is :**

A: Staph. Aureus

B: Treponemma Pallidum

C: Nesisseria Gonorrhea

D: E. Coli

**8. Which of the following can be prevented through vaccination?**

A: AIDS and cancer

B: Malaria and AIDS

C: Typhoid and cancer

D: Mumps and measles

**9. An isolated virus is not considered a living organism because?**

A: It separates into two inert part

B: It cannot metabolize

C: It rapidly loses its genome

D: It is coated with air-tight, chemically inert shield

**10. When a bacteriophage is in its lytic phase. It carries some of the bacterium's partially digested chromosome to another host cell, the process is called?**

A: Conjugation

B: Transformation

C: Transduction

D: Restricted transduction

**11. Which of the following statement is correct regarding the bacteriophage cycle?**

A: In lysogenic phage, the viral DNA exists as a separate molecule within the bacterial cell.

B: Lyctic phage does not harm the host cell.

C: In lysogeny the bacterium continues to live and reproduce normally.

D: All of the above are correct.

**12. Which one of the following fungi cause vaginal thrush?**

A: Tortula

B: Aspargillus

C: Candida

D: Penicillium

**13. Which bacteria need oxygen but can also live in the absence of oxygen?**

A: Facultative bacteria

B: Aerobic Bacteria

C: Anaerobic bacteria

D: Microaerophilic bacteria

**14. Function of bacterial endospores is?**

A: Reproduction

B: Protein Synthesis

C: Survival

D: Storage

**15. Which statement about bacteria is true?**

A: Gram positive bacteria have more lipids in their cell wall

B: Gram negative bacteria have more lipids in their cell wall

C: Lipids are absent in both gram positive and gram negative bacteria

D: Both have equal amount of lipids

**16. Which fungal disease spreads by seed and flowers?**

A: Soft rot of potato.
B: Corn smut.
C: Covered smut of barley.
D: Loose smut of wheat.

**17. Most of the lichens consist of?**

A: Green algae and ascomycetes
B: Brown algae and higher plant
C: Blue green algae and basidiomycetes
D: Red algae and ascomycetes

**18. Which one of the following is the serious infection of lungs caused by inhalation of spores of a fungus?**

A: Pneumonia
B: Histoplasmosis
C: Ergotism
D: Aspergillosis

**19. Which of the following is an example of chemotherapeutic agent?**

A: Formaldehyde
B: Phenol
C: Sulfonamides
D: Alcohol

**20. Rhabdovirus has what kind of shape?**

A: Round shape
B: Tadpole like
C: Cubical shape
D: Rod shape

TEST 4

**1. Fungi which cause thrush in humans are:**

A: Lovastatin
B: Aspergillus fumigatus
C: Sacromyces
D: Candidiasis

**2. Most widespread problem by misuse of antibiotics is:**

A: Rapid cure
B: Disturbance in metabolism
C: Increased resistance in pathogens
D: Immuity

**3. Lichens indicate $SO_2$ pollution because they?**

A: Show association between algae and fungi
B: Grow faster than others
C: Are sensitive to $SO_2$
D: Flourish in $SO_2$ rich environment.

**4. Citric acid is obtained from which fungi species?**

A: Morchella
B: Pencillium
C: Cyclosporine
D: Aspergillus

**5. Bacteria were regarded to be Plants because of which of the following reasons?**

- A: Some of them are green.
- B: They are present every where.
- C: Some of them cannot move.
- D: They have a rigid cell wall.

**6. Which of the following fungi secretes toxins during storage conditions of crop plants?**

- A: Aspergillus
- B: Candida Albicans
- C: Fusarium
- D: A & B

**7. How does a virus detroys its host ?**

- A: By taking control of its food.
- B: By bursting or destroying its structure through mass production
- C: By dehydrating the host.
- D: By damaging the golgi apparatus of the cell.

**8. The organisms which can grow best in the presence of a low concentration of oxygen are called?**

- A: Aerophilic
- B: Microaerophilic
- C: Aerobic
- D: Anaerobic

**9. Mycorrhizae exhibits the phenomenon of?**

- A: Parasitism
- B: Symbiosis
- C: Antagonism
- D: Endemism

**10. Which one of the following statement about lichens is wrong?**

- A: These grow very rapidly (2 cm per day).
- B: They show fungal and algae symbiotic relationships.
- C: Some of its species are eaten by reindeers.
- D: These are pollution indicators.

**11. Which of the following is a RNA virus?**

- A: Herpes Virus
- B: Pox Virus
- C: Polio virus
- D: All of the above.

**12. Reverse transcriptase is used to make DNA copies of:**

- A: Host RNA
- B: Host DNA
- C: Viral RNA
- D: Viral DNA

**13. Which type of bacteria has flagella surrounding the whole cell?**

- A: Peritrichous
- B: Lophotrichous
- C: Atrichous
- D: Monotrichous

**14. Mesosomes are infoldings of cell membrane and are involved in:**

A: RNA synthesis
B: Protein synthesis
C: DNA replication
D: Metabolism

**15. Which of the following structure is present in all bacteria?**

A: Ribosome
B: Slime
C: Flagella
D: Capsule

**16. After entering the cell, 200 bacteriophages are formed in how many minutes?**

A: 10
B: 25
C: 40
D: 100

**17. Mouth, lips and skin are affected due to the infection of?**

A: Pox Virus
B: Paramyxo virus
C: Herpes virus
D: Influenza virus

**18. Which of the following are used mostly in the phage study?**

A: $T_2$ & $T_4$
B: $T_1$ & $T_2$
C: $T_3$ & $T_4$
D: $T_1$ & $T_3$

**19. There exists a close association between the alga and the fungus within the lichen. The fungus?**

A: Provides food for the algae.
B: Provides protection, anchorage and absorption for the algae.
C: Fixes the atmospheric nitrogen for the alga.
D: Releases oxygen for the algae.

**20. Retroviruses have a special enzyme which can convert a single-stranded RNA genome into double-stranded viral DNA.This enzyme is called?**

A: Reverse transcriptase
B: RNA polymerase
C: Viral nuclease
D: RNA replicas

KINGDOM PLANTAE & ANIMALIA
TEST 1

**1. The leaves of Lycopsida are small and single veined, they are also called_____?**

A: Microphyll
B: Megaphyll
C: Foliage
D: Lamina

**2. In which vertebrates placenta is formed during the development of fetus?**

A: Pisces
B: Aves
C: Mammals
D: Reptiles

**3. Silk worm is:**

A: Insect
B: Arachnid
C: Myrapod
D: Crustacian

**4. Which of the following are considered as the earliest or most primitive form of animals on the earth?**

A: Cnideria
B: Flateworms
C: Porifera
D: Nematodes

**5. Five kingdom classification system was introduced by which scientist?**

A: Robert Brown
B: Pasteur
C: Robert Whittaker
D: De-Duve

**6. Which of the following specie is not present in Class Oligochaeta (Phylum Annelida)?**

A: Lumbricus terrestris
B: Pheretima posthuma
C: Other earthworms
D: Chaetopterus

**7. Which group of Vascular plant is also called arthrophytes because the whole plant body is composed of large number of joints?**

A: Pteropsida
B: Sphenopsida
C: Lycopsida
D: Psilopsida

**8. Which is not included in Ferns or class Filicineae?**

A: Dryopteris
B: Pteridium
C: Adiantum
D: Equisetum

**9. Which type of the blood circulatory system is present in Arthropods?**

A: Closed Circulatory system
B: Open Circulatory system
C: No Circulatory system
D: None of these

**10. Ascaris is which one of the following?**

A: Ectoparasite
B: Intestinal parasite
C: Respiratory parasite
D: Urogenital parasite

**11. Which of the following endoparasite in sheep and occasionally in human beings?**

A: Liver fluke
B: Blood fluke
C: Tapeworm
D: None of these

**12. Which one of the following is the primary host of liver fluke?**

A: Man
B: Sheep
C: Snail
D: Dog

**13. The soruces of staple food for man are plants which belong to the family?**

A: Mimosaceae
B: Poaceae
C: Rosacea
D: Fabaceae

**14. The body of nematodes is:**

A: Segmented
B: Flat
C: Jointed
D: None of these

**15. Which one is the most important plant of Solanaceae family?**

(Hint: The people of Ireland are completely dependent on it)

A: Solanum tuberosum
B: Nicotiana tabacum
C: Lycopersicum esculentum
D: Capsicum frutescens

**16. All the larval form of Echinodermata animals exhibits bilateral symmetry but the adults' shows_____ kind of symmetry.**

A: Bilateral symmetry
B: Radial symmetry
C: Both A and B
D: Plane Symmetry

**17. _____ is a good example of polymorphism.**

A: Hydra
B: Star Fish
C: Obella
D: Equplectella

**18. Nematodes are best described as:**

A: Round worms, triploblastic, Pseudocoelomates
B: Round worms, diploblastic, Pseudocoelomates
C: Round worms, triploblastic, coelomates
D: Round worms, triploblastic, acoelomates

**19. Which of the following is the amphibian of the plant kingdom?**

A: Pteridophytes
B: Bryophytes
C: Gymnosperms
D: Angiosperms

**20. Many members of _____ family yields powerful alkoids e.g. Atropa bellandona, Datura which are rich in atropine and deturine respectively are used medicinally.**

A: Fabaceae
B: Caesalpiniaceae
C: Poaceae
D: Solanaceae

TEST 2

**1. Endosperm of Pinus which belongs to Class Gymnospermae is:**

A: Haploid
B: Diploid
C: Triploid
D: Polyploid

**2. _____ is a triploblastic organism.**

A: Jelly fish
B: Sea anemone
C: Tapeworms
D: Corals

**3. The spore of a moss, unlike that of liverworts, develops into alga like structure called _____?**

A: Paraphyses
B: Protonema
C: Antheridia
D: Archegonia

**4. Body cavity of round worm is called ?**

A: Pseudocoelom
B: Coelom
C: Acoelom
D: Enteron

**5. Fern seed plants are included in which sub division of vascular plants?**

A: Filicineae
B: Lycopsida
C: Sphenopsida
D: Pteropsida

**6. Which one is the earliest Group of Vascular Plants?**

A: Lycopsida
B: Sphenopsida
C: Pteropsida
D: Psilopsida

**7. Which one is the simplest of all bryophytes?**

A: Bryopsida
B: Anthoceropsida
C: Hepaticopsida
D: Pteropsida

**8. In which of the following class respiration is by gills lungs or special structures is called book lungs?**

A: Class Crustacea
B: Class Insecta
C: Class Arachnida
D: Class Myriapoda

**9. Which of the following is a kind of inflorescence?**

A: Racemose
B: Cymose
C: Solitar
D: All of these

**10. Which of the angiosperms plant lack chlorophyll and a parasite in nature?**

A: Indian Pipe
B: Wild Geranium
C: Fragrant water lily
D: None of these

**11. In Annelida (The segmented Worms) excretion takes place through specialized structures called_____?**

A: Prostomium
B: Nephridia
C: Papillae
D: Gastrozoids

**12. Which one of the following is an example of free living carnivorous flatworm?**

A: Liver fluke
B: Schistosoma
C: Tapeworm
D: Dugesia

**13. Polymorphism is a characteristics feature of:**

A: Cnidaria
B: Porifera
C: Annelida
D: Nematods

**14. A healthy megaspore in the megasorangium germinate to form:**

A: Male Gametophyte
B: Embryo Sac
C: Female Gametophyte
D: Sporophyte

**15. When beef which is not properly cooked is consumed by humans, they may become infected by:**

A: Hook worm
B: Pin worm
C: Tape worm
D: Round worm

**16. The earliest group of the vascular plants is:**

A: Psilopsida
B: Lycopsida
C: Pteropsida
D: Sphenopsida

**17. Which of the following are naked-seeded plants?**

A: Gymnospermae
B: Angiospermae
C: Lycopsida
D: Psilopsida

**18. In the angiosperms, the fertile leaves having ovules are folded and joined at the margins to form:**

A: Ovary
B: Ovule
C: Seed
D: Stigma and style

**19. Sleeping sickness in humans is caused by:**

A: Anopheles
B: Aedes
C: Trypanosoma
D: Plasmodium

**20. Fabaceae family of about 400 genera and 900 species is also known as_____?**

A: Pea Family
B: Potato Family
C: Rose Family
D: Cassia Family

TEST 3

**1. The male reproductive parts of flower are called?**

A: Gynoecium
B: Calyx
C: Corolla
D: Androecium

**2. Which of the following character is missing in Kingdom Animalia?**

- A: Multicellular
- B: Eukaryotic
- C: Diploid
- D: Autotrophs

**3. In bryophytes the structure which is similar to the roots of vascular plants are the:**

- A: Antheridia
- B: Rhizoids
- C: Zooids
- D: Archegonia

**4. In Angiospermae leaves bearing ovules are folded and joined at the margins to form_____?**

- A: Fruits
- B: Seeds
- C: Ovaries
- D: Flowers

**5. _____ is also called liver fluke.**

- A: Dugesia
- B: Taenia
- C: Fasciola
- D: Coral

**6. In double fertilization one of two male gametes fuses with the secondary nucleus to form endosperms while second male gamete fuses with egg to form_____?**

- A: Nucleus
- B: Haploid Zygote
- C: Oospore
- D: Embryo

**7. In which of the following class of Annelida locomotion organs are not present and they move due to the contraction of their body with the help of suckers?**

- A: Class Polychaeta
- B: Class Oligochaeta
- C: Class Hirudinea
- D: None of these

**8. Important terrestrial adaptation that evolved exclusively in seed plants include all of the following except**

- A: Pollination by wind or animal instead of fertilization by swimming sperm
- B: Transport of water through vascular tissues
- C: Retention of the gametophyte plant within the sporophyte
- D: Dispersal of new plant by seeds

**9. The unique feature of bryophytes compared to other green plant group is that**

- A: They produce spores
- B: They lack vascular tissue
- C: They lack roots
- D: Their sporophyte is attached to the gametophyte

**10. Name common gut roundworm parasite of humans and pigs :**

- A: Ascaris Lumbricoides
- B: Lumbricus Terresaris
- C: Pheretima Posthuma
- D: Hirudo Medicinalis

**11. A heterosporous plant is one that:**

A: Produces a gametophyte that bears both sex organs

B: Produce microspores and megaspores in separate sporangia, giving rise to separate male and female gametophytes

C: Is a seedless vascular plant

D: Produce two kinds of spores, one asexually by mitosis and one type by meiosis

**12. The largest class of the Mollusca which includes snails and slugs is:**

A: Bivalvia

B: Gastropoda

C: Cephalopoda

D: Monoplacophora

**13. Which one was the first Plant in which True leaves and roots were formed?**

A: Cooksonia

B: Psilotum

C: Lycopods

D: Horneophyton

**14. In human E. Coli is involved in the formation of :**

A: Calcium

B: Vitamin D

C: Vitamin K

D: Vitamin A

**15. Which one of the following is not included in Subdivision of Bryophytes?**

A: Hepaticopsida

B: Bryopsida

C: Anthoceropsida

D: Lycopsida

**16. Which specie of plant does not belongs to Fabaceae family which is also known as Pea family?**

A: Lathyrus odoratus

B: Arachis hypogea

C: Cicer arietinum

D: Solanum tubersum

**17. Mollusca in which bodies arc enclosed in a shell which consists of right and left piece are included in class:**

A: Bivalvia

B: Gastropoda

C: Cephalopoda

D: Monoplacophora

**18. The fruit of _____ and _____ are rich in Vitamin C and A and are used as Condiment.**

A: Capsicum annum and Capsicum frutescens

B: Capsicum annum and Nicotiana tabacum

C: Lycopersicum esculentum and Capsicum frutescens

D: Capsicum annum and Solanum tuberosum

**19. The male gametophyte of an angiosperm is the:**

A: Anther

B: Embryo sac

C: Microspore

D: Germinated pollen grains

**20. Which family is also known as Night shade or Potato family?**

A: Fabaceae

B: Caesalpiniaceae

C: Poaceae

D: Solanaceae

TEST 4

**1. Transportation of water and minerals in Bryophytes occur through_____?**

A: Xylem

B: Phloem

C: Diffusion or osmosis

D: All of these

**2. Platyhelminthes are best described as:**

A: Flatworms, triploblastic, acoelomates animals

B: Flatworms, diploblastic, acoelomates animals

C: Flatworms, triploblastic, coelomates animals

D: Flatworms, triploblastic, pseudo coelomates

**3. It is assumed that evolution of megaphyll included series of successive evolutionary steps among which is the arrangement of unequal dichotomies in one plane. This process is known as_____?**

A: Overtopping

B: Fusion

C: Webbing

D: Planation

**4. Which of the following Platyhelminthes is not endoparasite, i.e., live inside their host?**

A: Liver fluke

B: Blood fluke

C: Tapeworm

D: Planaria

**5. In which class of Pteropsida seedless plants with foliar sporangia are present?**

A: Filicineae

B: Gymnosperm

C: Angiosperm

D: Both in B & C

**6. _____ is the first group of the invertebrates which have developed a closed circulatory system?**

A: Flat worm

B: Sponges

C: Annelids

D: Coelenterates

**7. Bryophytes plants possess which of the following characteristics_____?**

A: Non-Vascular, Flowerless

B: Vascular, flowerless

C: Vascular, flowering

D: Non-Vascular, flowering

**8. Polymorphism is a mechanism exhibited by?**

A: Coelenterates

B: Arthropods

C: Porifera

D: Platyhelminthes

**9. A spider is different from the insects because of the reasons:**

A: It has four pairs of legs

B: Does not have any antenna

C: Body is divided into two parts

D: All of these

**10. Which fern grows along moist walls and water courses and its stem is a short, thick and underground, usually unbranched horizontally growing rhizome?**

A: Pteridium

B: Dryopteris

C: Pteris

D: Adiantum

**11. Which of the following phylum of Kingdom Animalia have well developed excretory system containing malpighian tubules?**

A: Arthropoda

B: Annelida

C: Mollusca

D: Porifera

**12. Multicellular male reproductive organ of Bryophytes is:**

A: Archegonia

B: Antheridia

C: Oogamy

D: Sporangium

**13. Which of the following arthropods are aquatic and have gills for respiration?**

A: Class Crustacea

B: Class Insecta

C: Class Arachnida

D: Class Myriapoda

**14. During development in an animal, mesoderm layer give rise to:**

A: Nervous system

B: Alimentary canal

C: Mouth

D: Skeletal and muscular system

**15. Which of the following is not included in Non-Vascular Plants?**

A: Liverworts

B: Mosses

C: Hornworts

D: Club Mosses

**16. Nematocysts are the specialized cells found in the members of phylum_____?**

A: Cnidaria

B: Porifera

C: Annelida

D: Mollusca

**17. Horsetails are included in class**

A: Sphenopsida

B: Lycopsida

C: Psilopsida

D: Pteropsida

**18. The branches of_____ provide excellent walking sticks and wood.**

A: Crataegus

B: Pyrus Pastia

C: Fragaria D: Malus

**19. Many Colonial coelenterates such as corals produce a hard exoskeleton formed of_____?**

A: $CaCl_2$ B: $CaCO_3$

C: $CaSO_4$ D: None of these

**20. _____ is the beautiful and delicate sponge made of glassy frame work. It is commonly called Venus flower basket?**

A: Sycon B: Spongilla

C: Euplectella D: Leucoselenia

DIGESTION
TEST 1

**1. Which group of animals have teeth structurally and functionally intermediate between the extremes of specialization?**

A: Omnivores. B: Herbivores.

C: Carnivores. D: Macrophagous feeders.

**2. Which of these is not a disease but a symptom of other disorders?**

A: Piles B: Bulimia nervosa

C: Food poisoning D: Dyspepsia

**3. What are the characteristic movements of digestive system called?**

A: Swallowing. B: Peristalsis.

C: Antiperistalsis. D: Mastication.

**4. Where is partly digested food stored in the cockroach?**

A: Malpighian tubule B: Gizzard

C: Mesenteron D: Crop

**5. Where does the most absorbtion of digested food takes place?**

A: Duodenum. B: Jejunum.

C: Ileum. D: Ascending colon.

**6. The function of goblet cells is to secrete?**

A: Gastrin B: HCl

C: Pepsinogen D: Mucus

**7. In which form the food is pushed to the back of mouth by the action of tongue?**

A: Grinded food. B: Bolus.

C: Chyme. D: Digested food.

**8. Which of these is the longest segment of small intestine?**

A: Duodenum.
B: Jejunum.
C: Ileum.
D: All are of same length

**9. In large intetine, vitamin K is formed by the activity of ?**

A: Symbiotic bacteria
B: Obligate bacteria
C: Parasitic bacteria
D: Facultative bacteria

**10. What is the action of backward movement of tongue on epiglottis?**

A: Epiglottis goes in a horizontal position.
B: Closes the glottis.
C: Epiglottis goes in a vertical position.
D: Both A & B.

**11. Which of these is an omnivore?**

A: Cattle.
B: Cat.
C: Crows.
D: Dog.

**12. What is the midgut of cockroach called?**

A: Gizzard
B: Crop
C: Mesenteron
D: Colon

**13. What is the major function of rectum in cockroach?**

A: Breakdown of food.
B: Grinding.
C: Digestion.
D: Temporary storage.

**14. What is the mode of nutrition in earthworm?**

A: Omnivores.
B: Macrophagous feeders.
C: Detrivores.
D: Filter feeders.

**15. What are the 3 sites of digestion in humans?**

A: Oral cavity, esophagus, stomach.
B: Oral cavity, stomach, small intestine.
C: Stomach, small intestine, colon.
D: Stomach , small intestine, liver.

**16. Which organelle fuses with food vacuole in amoeba in the first step of digestion?**

A: Ribosome
B: Phagosome
C: Lysosomes
D: Golgi vesicles

**17. Which force assists the movement of material through the esophagus?**

A: Gravity.
B: Body movements.
C: Antiperistalsis.
D: Digestion.

**18. Which group of teeth is most important in carnivores?**

A: Incisors.
B: Premolars.
C: Molars.
D: Canines.

**19. The diagram shows the four types of human tooth. Which teeth are used for cutting rather than grinding food?**

A: 1 and 2
B: 2 and 3
C: 3 and 4
D: 4 and 1

**20. What is the benefit of capturing prey in insectivorous plants?**

A: Autotrophism.
B: Rapid growth.
C: Food variety.
D: Fast metabolism.

TEST 2

**1. Histamine is produced by which cells?**

A: Basophils
B: Platelets
C: Monocytes
D: Eosinophils

**2. Which teeth are mainly responsible for the grinding of food in humans?**

A: Incisors
B: Canines
C: Premolars
D: Molars

**3. Where are the salivary glands present in cockroach?**

A: Mouth cavity
B: Malpighian tubule
C: Pharynx
D: Thorax

**4. Which of the following organisms has the digestive cavity known as coelenteron?**

A: Planaria
B: Cockroach
C: Hydra
D: Amoeba

**5. What is the effect of phosphorus deficiency in plants?**

A: Chlorosis.
B: Stunted growth of roots.
C: Preamature death.
D: Leaf margins yellowing.

**6. Which of these is not an animal mode of nutrition?**

A: Detritivores
B: Fluid feeders
C: Parasitic
D: Autotrophism

**7. Saliva is basically composed of water,mucus,amylase and :**

A: Sodium hydroxide
B: Sodium bicarbonate
C: Hydrocarbons
D: Sodium chloride

**8. Cat belongs to which group of animals on the basis of nutrition?**

A: Herbivores.
B: Carnivores.
C: Omnivores.
D: Macrophagous feeders.

**9. Bicarbonate ions in the human digestive system are released by which organ?**

A: Liver
B: Gallbladder
C: Pharynx
D: Pancreas

**10. Which of the following is the stimulus for gastrin production in humans?**

A: Protein
B: Lipid
C: Carbohydrate
D: Vitamins

**11. Gastric glands are composed of _____ types of cells?**

A: 2
B: 3
C: 4
D: 5

**12. Trypsinogen is activated to trypsin by :**

A: HCl
B: Enterokinase
C: Mucus
D: Gastrin

**13. Which of these is a function of saliva?**

A: Moistening and lubrication.
B: Antisepsis and stabilization of pH.
C: Carbohydrate digestion.
D: All of these.

**14. Which of these is not a method of macrophagous feeding?**

A: Tentacular feeding.
B: Grazing.
C: Scraping.
D: Seizing.

**15. How insects are trapped in sundew plant?**

A: Cannot climb out because of stiff hair.

B: Interlocked between stiff bristles

C: Caught in sticky fluid at the end of leaf.

D: Stuck in complex leaf structure.

**16. What are the blind ends of intestine branchings in planaria called?**

A: Cnidocil

B: Eyespot

C: Caecae

D: Colon

**17. Which cells in hydra are responsible for mixing of food with enzymes and breaking it up into fine particles?**

A: Glandular cells.

B: Flagellate cells.

C: Cnidocil.

D: Nematocyst.

**18. Which one of the following vitamins is produced by the microflora of large intestine?**

A: Vitamin D

B: Vitamin C

C: Vitamin K

D: Vitamin A

**19. What is the correct sequence of characteristic process of holozoic nutrition?**

A: Ingestion - assimilation - digestion - egestion

B: Ingestion - digestion - egestion - assimilation

C: Digestion - absorbtion - assimilation - ingestion

D: Ingestion - digestion - absorbtion - assimilation

**20. In which case the walls of stomach or duodenum become denuded of mucus protection and a sore develops?**

A: Piles

B: Dyspepsia

C: Food poisoning

D: Ulcer

TEST 3

**1. What of the following causes hunger pangs in humans?**

A: Hypoglycemia

B: Hyperglycemia

C: Hypotension

D: Hypocalcemia

**2. Which herbivore does not have upper incisors?**

A: Horse.

B: Sheep.

C: Cow.

D: Camel.

**3. How long after previous meal does a hunger pang begins?**

A: 6 - 12 hours.

B: 12 - 24 hours.

C: 24 - 36 hours.

D: 36 - 48 hours.

**4. What is the burning sensation caused by the back flush of acidic chyme into esophagus called?**

- A: Vomiting
- B: Antiperistalsis
- C: Pyrosis
- D: Indigestion

**5. In which disease related to nutrition serum electrolyte imbalance is very common?**

- A: Obesity
- B: Anorexia nervosa
- C: Bulimia nervosa
- D: Piles

**6. What is the main function of gall stones?**

- A: Digest proteins.
- B: Generate bile pigments.
- C: Activate trypsinogen.
- D: Block the relase of bile.

**7. Which of these cause food poisoning and have selective action on central nervous system?**

- A: Salmonella.
- B: Campylobactor.
- C: Clostridium.
- D: Streptococci.

**8. What is the main function of zymogen cells in the human stomach?**

- A: Decrease in stomch pH.
- B: Regulation of secretion.
- C: Mucus production.
- D: Protein digestion.

**9. Which plant has a characteristic bilobed leaves with midrib between them and a row of long stiff bristles along margin of each lobe?**

- A: Sarracenia pupurea.
- B: Brassica campestris.
- C: Drosera intermedia.
- D: Dionaea muscipula.

**10. HCl in gastric juice is secreted by which one of the following cells?**

- A: Chief Cells
- B: Oxyntic cells
- C: Mucous Cells
- D: Kupfer cells

**11. What is the major benefit of grinding?**

- A: Easy swallowing and fast digestion
- B: Protection from foreign bodies.
- C: Easy digestion.
- D: Fast egestion.

**12. What is the other component of pancreatic secretions apart from the digestive enzymes?**

- A: Mucus
- B: Hydrochloric acid
- C: Sodium bicarbonate
- D: Water

**13. Which of the following cells are not part of the stomach?**

- A: Parietal cells.
- B: Zymogen cells.
- C: Endocrine cells.
- D: Goblet cells.

**14. Which of these does not produce the mentioned secretion?**

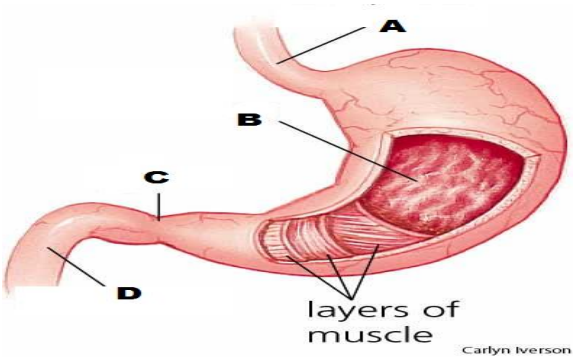
A: Mucus cells - mucus.

B: Parietal cells - hydrchloric acid.

C: Zymogen cells - pepsinogen.

D: Oxyntic cells - pepsinogen.

**15. Identify duodenum in the figure below:**




A: A

B: B

C: C

D: D

**16. What are the 3 kinds of cells present in the human gastric glands?**

A: Mucous, parietal and oxyntic.

B: Zymogen, parietal, oxyntic.

C: Mucous, oxyntic, zymogen.

D: Parietal, oxyntic, chief cells.

**17. What is meant by piles?**

A: Voracious eating followed by self induced vomiting or fasting.

B: Incomplete or imperfect digestion.

C: Having abnormal amount of fat on body.

D: Masses of dilated, tortuous veins in anorectal mucosa.

**18. Which of these lives as a twining parasite?**

A: Dodder.

B: Puccinia.

C: Lichen.

D: Mycorrhiza.

**19. What is the pH required for the 2nd phase of digestion in amoeba during which it is completed?**

A: 5.6

B: 7

C: 7.3

D: 4.5

**20. How does the planaria engulfs the prey?**

A: Prey is paralyzed by ejecting poison and grasped and pushed into mouth.

B: By protruding eversible pharynx through mouth and pushes it into gastrovascular cavity.

C: By forming a food vacuole.

D: By simple mouth feeding.

TEST 4

**1. What component of a prey is beneficial in insectivorous plants?**

A: Nitrogenous compounds.
B: Fatty acids.
C: Minerals.
D: Enzymes.

**2. The hormone which inhibits the secretion of gastric juice is:**

A: Secretin
B: Gastrin
C: Thyroxin
D: Parathromone

**3. Which of the following matches the correct enzyme with substrate?**

A: Erypsin – Maltose
B: Maltase - Lactose
C: Amino peptidase – Dipeptides
D: Lipase - Fat

**4. What is the condition arising due to the excessive water absorbtion from large intestine?**

A: Diarrhea
B: Gall stones
C: Urinary tract infection
D: Constipation

**5. The lymph vessel of villi is called :**

A: Epithelium
B: Afferent Lymph vessel
C: Adenoids
D: Lacteals

**6. What is the mode of nutrition in aphids?**

A: Filter feeders.
B: Fluid feeders.
C: Macrophagous feeders.
D: Detrivores.

**7. What is the parasite called that lives in host at all the times ?**

A: Endoparasite.
B: Ectoparasite.
C: Obligate.
D: Facultative.

**8. Which of the following enzymes is released in inactive form ?**

A: Amylase
B: Lipase
C: Enterokinase
D: Pepsin

**9. Which organism provides protection against desiccation in lichens?**

A: Algae.
B: Roots.
C: Bacteria.
D: Fungus.

**10. What is the mode in which water entering body is responsible for providing nutrition?**

A: Filter feeders.
B: Macrophagous feeders.

C: Detrivores.
D: None of the above.

**11. Which cells produce mucus in large intestine?**

A: Goblet cells.
B: Absorptive cells.
C: Endocrine cells.
D: Parietal cells.

**12. Which of the following is the last part of the small intestine?**

A: Duodenum
B: Ileum
C: Jejunum
D: Colon

**13. What kind of nutrition is seen in Puccinia?**

A: Autotrophic.
B: Saprophytic.
C: Parasitic.
D: Symbiotic.

**14. How many princple layers are present in human stomach wall?**

A: 1
B: 2
C: 3
D: 4

**15. Pepsin, protein digesting enzyme sets best pH:**

A: 3
B: 4.5
C: 2
D: 6

**16. The following reaction occurs in the human alimentary canal.**

starch -> enzyme -> products, What is the enzyme and the product?

A: Acid, Glucose
B: Alkali, Energy
C: Amylase, Maltose
D: Bile, Amino acid

**17. _____ is activated to _____, by enterokinase/ enteropeptidase enzyme secreted by the linning of duodenum.**

A: Trysinogen,trypsin
B: Pepsinogen,pepsin
C: Pepsinogen,trysin
D: Chymotrypsinogen,chymotrypsin

**18. Which type of feeding is seen in hydra?**

A: Scraping.
B: Filter.
C: Seizing and swallowing.
D: Tentacular.

**19. Trypsinogin is converted into trypsin by the activity of:**

A: Goblet cells
B: Absorbtive cells
C: Enteropeptidase
D: Enterokinase

**20. Which organ in humans plays the most important role in the selection of food?**

A: Stomach
B: Esophagus
C: Tongue
D: Nose

GASEOUS EXCHANGE
TEST 1

1. **About 70-85% $CO_2$ is carried in blood as :**

A: Carboxy Hb
B: Freely as $CO_2$
C: With proteins in plasma
D: As bicarbonate

2. **Iron contaning pigment present in muscle fiber is?**

A: Myoglobin
B: Hemoglobin
C: Biliverdin
D: Bilirubin

3. **Hemoglobin is ?**

A: Lipid in nature
B: Protein in nature
C: Carbohydrate in nature
D: Lipoprotein in nature

4. **During inspiration diaphragm moves ?**

A: Downward
B: Upward
C: Inward
D: Outward

5. **Skin of earth worm is rich in ?**

A: Capillaries
B: Sweat glands
C: Hair follicle
D: Sebaceous glands

6. **Respiration occurs at how many levels?**

A: 2
B: 3
C: 4
D: 5

7. **How many pairs of gills are present in fish?**

A: 1-2
B: 2-3
C: 3-4
D: 4-5

8. **One complete heart beat consist of one systole and one diastole and lasts for :**

A: 0.8 sec
B: 0.2 sec
C: 0.4 sec
D: 0.5 sec

9. **The wall of trachea contains C shaped structure called?**

A: Cartilagenous rings
B: Elastic rings
C: Muscular rings
D: None of above

10. **Cellular respiration is a process by which cell utilize oxygen and proteins, and produce?**

A: CO

B: $CO_2$

C: NO

D: $NO_2$

**11. In humans complex cartilagenous structure also known as voice box is called?**

A: Nostrils

B: Trachea

C: Pharynx

D: Larynx

**12. The total capacity of lungs is about?**

A: 4 litres

B: 5 litres

C: 6 litres

D: 7 litres

**13. Bronchioles are made up of?**

A: Longitudinal smooth muscle

B: Circular smooth muscle

C: Both longitudinal and circular smooth muscle

D: skeletonal muscle

**14. Stomata are largely present in which part of the plants?**

A: Leaves

B: Old stem

C: Root

D: Flower

**15. The most common respiratory substance as a source of energy is :**

A: Glucose

B: Sucrose

C: Fructose

D: Insulin

**16. Gaseous exchange in frog occurs through ?**

A: Lungs

B: Skin

C: Buccal cavity

D: All of above

**17. Which part of chest cavity is formed by diaphragm?**

A: Roof

B: Medilal wall

C: Floor

D: Lateral wall

**18. In cockroach main trunk communicate with exterior by means of ?**

A: Holes

B: Pores

C: Spiracles

D: Stomata

**19. Exchange of gases in lungs occur through ?**

A: Active transport

B: Passive transport

C: Facilitated diffusion

D: Diffusion

**20. Which one of the following feature is present in Respiratory surface of animals ?**

A: Thick epithelium

B: Smal surface area

C: Extensive capillary network

D: Dryness

TEST 2

**1. Most of the $CO_2$ in human body is transported as?**

A: Carboxyhaemoglobin

B: Absorbed in plasma proteins.

C: Bicarbonate ion.

D: Corpuscles combined with potassium.

**2. Factor/s affecting oxygen carrying capacity of hemoglobin is/are?**

A: Carbon dioxide

B: Temparature

C: PH

D: All of above

**3. Haemoglobin combines with oxygen to form?**

A: Oxyhaemoglobin

B: Carboxyhaemoglobin

C: Methemoglobin

D: Reduced haemoglobin

**4. In hydra, the exchange of oxygen and carbondioxide takes place through the lining of ?**

A: Digestive cavity

B: Respiratory cavity

C: Skin

D: Mucous membrane

**5. Air spaces comprise how much volume of leaf?**

A: 30%

B: 40%

C: 50%

D: 60%

**6. When carbondioxide level increases, the ability of hemoglobin to hold oxygen ?**

A: Increases

B: Decreases

C: Becomes variable

D: Remains same

**7. Residual air volume of lungs is?**

A: 1/4 litre.

B: 1/2 litre.

C: 1 litre.

D: 1.5 litres.

**8. In birds lungs have developed several extensions known as?**

A: Alveoli

B: Parabronchi

C: Bronchi

D: Air sacs

**9. Absorbing surface of lung is greatly reduced in which disease?**

A: Emphysema

B: Asthama

C: Pneumonia

D: Tuberculosis

**10. The total inside capacity of the lung is _____ for men.**

A: 7 liters

B: 6-7 liters

C: 5 liters

D: 2.5 liters

**11. In cockroach spiracles are present on ?**

A: Medial side of body

B: Dorsal side of body

C: Ventral side of body

D: Lateral side of body

**12. Breathing is what kind of process?**

A: Mechanical process

B: Chemical process

C: Biochemical process

D: Electrical process

**13. Number of stomata per square centimeter in the leaf of tobacco plant are ?**

A: 15000

B: 14000

C: 13000

D: 12000

**14. 5% of carbondioxide is carried to lungs ?**

A: By serum

B: By plasma protein

C: as bicarbonate ions

D: as carboxyhemoglobin

**15. In photo respiration glycine is converted into serine in ?**

A: Cytosol

B: Endoplasmic reticulum

C: Mitocondria

D: Nucelus

**16. Respiratory system is most efficient in?**

A: Humans

B: Frog

C: Fish

D: Birds

**17. How many spiracles pair are present in cockroach?**

A: 5

B: 10

C: 15

D: 20

**18. Which of the following described the movements involved in breathing out?**

Movement of ribs, and movement of Diaphragm

A: Ribs down and in diaphragm downwards

B: Ribs down and in diaphragm upwards

C: Ribs up and out diaphragm downwards

D: Ribs up and out diaphragm upwards

**19. Oxyhemoglobin in earth worm release oxygen at?**

A: Cellular level

B: Organ level

C: Tissue level

D: None of these

**20. Airs moves out in expiration due to ?**

- A: Contraction of intercostal muscles
- B: Contraction of diaphragm
- C: Active contraction of lungs
- D: Passive contraction of lungs

TEST 3

**1. In emphysema alveoli have?**

- A: Decreased volume and surface area
- B: Increased volume and surface area
- C: Decreased volume and increased surface area
- D: Increased volume and decreased surface area

**2. Respiratory distress syndrome is common in premature infants with a gestational age of less than?**

- A: 9 months
- B: 8 months
- C: 7 months
- D: 6 months

**3. Tuberculosis(TB) is a disorder of respiratory respiratory system caused by?**

- A: Mycobacterium laprae
- B: Mycobacterium marinium
- C: Mycobacterium tuberculosis
- D: Mycobacterium kansasi

**4. In cockroach branching system of tubule called tracheae is lined by?**

- A: Peptidogylcan
- B: Lipoprotein
- C: Chitin
- D: Glycocalyx

**5. Saturation of hemoglobin at 115 mmHg of oxygen is?**

- A: 96%
- B: 97%
- C: 98%
- D: 99%

**6. Which of the following is the functional unit of lungs?**

- A: Bronchus
- B: Bronchi
- C: Bronchioles
- D: Air sac

**7. During expiration ribs move?**

- A: Downward and outward
- B: Downward and inward
- C: Upward and outward
- D: Upward and inward

**8. In humans, nasal cavities are lined with mucous membrane of ?**

- A: Ciliated epithelium
- B: Squamus epithelium
- C: Transitional epithelium
- D: Cuboidel epithelium

**9. Which of the following element in plasma form bicarbonate ion with $CO_2$ to transport it?**

- A: Sodium
- B: Potassium

C: Magnesium

D: Calcium

**10. During the act of swallowing larynx is closed by ?**

A: Glottis

B: Epiglottis

C: Vocal cords

D: Mucous flap

**11. In fish, gills surface is ventilated by constant flow of ?**

A: Oxygenated blood

B: Air

C: Water

D: Serum

**12. Human organs which can least withstand anoxia are?**

A: Brain and muscle

B: Skin and muscle

C: Brain and heart

D: Heart and liver

**13. Enzyme present in red blood cells which facilitate the oxygen carrying activity of hemoglobin is?**

A: Phosphodiesterase

B: Carbonic anhydrase

C: Lecithinase

D: Urease

**14. In asthama contraction of bronchioles is caused by the release of?**

A: Serotonin

B: Epinephrine

C: Norepinephrine

D: Histamine

**15. In cockroach how many pairs of spiracles are present in thorax?**

A: 2 pairs

B: 3 pairs

C: 4 pairs

D: 5 pairs

**16. In humans, the muscular air passage lined by mucous membrane is called?**

A: Nostrils

B: Pharynx

C: Larynx

D: Tracheae

**17. Percentage of $CO_2$ in the air exhaled by humans is?**

A: 0.04 %

B: 2 %

C: 3 %

D: 4 %

**18. The wall of chest cavity is made up of?**

A: Ribs only

B: Intercostal muscles only

C: Ribs and intercostal muscles

D: Ribs and diaphragm

**19. Carcinoma of lung is a?**

A: Malignent tumor

B: Benign tumor

C: Dysplastic growth

D: Metaplastic growth

**20. Lungs are covered with double layred thin membranous sac called?**

- A: Meninges
- B: Pericardium
- C: Pleura
- D: Peritoneum

TEST 4

**1. In most animals epithelium which seperates air and blood has thickness of?**

- A: 1 cell thick
- B: 2 cell thick
- C: 3 cell thick
- D: 4 cell thick

**2. Amount of carbondioxide in venous blood is?**

- A: 40ml/100ml of blood
- B: 45ml/100ml of blood
- C: 50ml/100ml of blood
- D: 54ml/100ml of blood

**3. Percentage of oxygen in the exhaled air by humans is about?**

- A: 21%
- B: 19%
- C: 17%
- D: 16%

**4. The number of air sacs in most of the birds are ?**

- A: 8
- B: 9
- C: 10
- D: 11

**5. Allergic reaction to pollen ,spore,cold etc is khown as?**

- A: Emphysema
- B: Asthama
- C: Carcinoma
- D: Tuberculosis

**6.** $CO_2 + H_2O \xrightarrow{Carbonic\ anhydrase} ?$

- A: $HCO_3$
- B: $H_2CO_3$
- C: $H_2O_2$ and CO
- D: $H_2O_2$ and CO2

**7. Pigmentation of the skin is due which of the following?**

- A: Leucocytes
- B: Lymphocytes
- C: Monocytes
- D: Melanocytes

**8. The simplest monosachride containing keto group is ?**

- A: Glyceraldehyde
- B: Dihyroxy acetone
- C: Glucose
- D: Ribose

**9. Which one of the following organism have single circuit heart?**

- A: Frog
- B: Earth worm
- C: Humans
- D: Fish

**10. Respiratory pigment in the humans is known as?**

- A: Myoglobin
- B: Haemoglobin

C: Bilirubin

D: Biliverdin

**11. Percentage of oxygen in the inhaled air is?**

A: 20%

B: 21%

C: 22%

D: 23%

**12. How many molecules of oxygen can combine with iron contaning ring structure in myoglobin?**

A: 1

B: 2

C: 3

D: 4

**13. At rest the average rate of breathig is?**

A: 10-15 times

B: 15-20 times

C: 20-25 times

D: 25-30 times

**14. In cutaneous respiration gaseous exchange takes place through?**

A: Gills

B: Skin

C: Buccal cavity

D: Lungs

**15. Tiny thin walled ducts present in the lungs of birds are called?**

A: Alveoli

B: Bronchi

C: Parabronchi

D: Bronchioles

**16. What is the residual volume of air which always remain insides the lungs of humans?**

A: 3.5 liters

B: 0.5 liters

C: 1.5 liters

D: 5.0 liters

**17. Decrease in blood pH has what effect on the oxygen bound to haemoglobin?**

A: It increases

B: It decreases

C: It remains same.

D: It may result in increase or decrease both depending on other conditions.

**18. With increase in temperature the oxygen carrying capacity of blood?**

A: Increases

B: Decreases

C: Remains same.

D: May increase or decrease.

**19. Maximum amount of Oxygen normal human blood can absorb and carry at sea level is about?**

A: 10ml/100ml of blood

B: 15ml/100ml of blood

C: 20ml/100ml of blood

D: 25ml/100ml of blood

**20. Which of the following disease results in the breakdown of alveoli?**

A: Asthma
B: Tuberculosis
C: Cancer
D: Emphysema

TRANSPORT
TEST 1

1. **Exchange of material in the capillaries takes place through?**

A: Active transport
B: Endocytosis
C: Intracellular space
D: All of the above

2. **The right atrium of human heart receives the deoxygenated blood through which of the following?**

A: Aorta
B: Pulmonary artery
C: Pulmonary veins
D: Venae cavae

3. **What is the location of Sinoatrial (S-A) node in the human heart?**

A: Lower end of right atrium.
B: Upper end of right atrium.
C: Lower end of left atrium.
D: Upper end of left atrium.

4. **In human heart, atrias are filled with the blood during?**

A: Diastole
B: Atrial systole
C: Ventricular systole
D: Extrasystole

5. **Which one of the following protein causes blood clotting?**

A: Pepsinogen
B: Immunoglobulin
C: Fibrinogen
D: Clabulin

6. **In arteries, muscular tissue is present in which layer?**

A: Outer layer
B: Middle layer
C: Inner layer
D: All the layers

7. **After a fatty meal, the fat globules make up _____% of lymph?**

A: 0.2 %
B: 0.5 %
C: 1 %
D: 2 %

8. **In phloem which one of the following is directly involved in the transportation of organic solutes?**

A: Companion cell
B: Latex containing cell
C: Sieve elements
D: Parenchyma cell

9. **Wall of the heart is composed of how many layers?**

A: 2 layers
B: 3 layers
C: 4 layers
D: 5 layers

**10. Oxygenated blood is supplied to the human body through?**

- A: Aorta
- B: Vena cava
- C: Pulmonary artery
- D: Pulmonary vein

**11. Movement of water molecules from a region of higher concentration to the region of lower concentration through a partially permeable membrane is called?**

- A: Diffusion
- B: Active transport
- C: Passive transport
- D: Osmosis

**12. Mycorrhizae that are present in the 90% of the failies of flowering plant is a?**

- A: Bacteria
- B: Amoeba
- C: Virus
- D: Fungi

**13. Which one of the following organism has no special transport system?**

- A: Lizard
- B: Planaria
- C: Cockroach
- D: Earth worm

**14. In birds and mammals pulmonary trunk arises from which of the following?**

- A: Right ventricle
- B: Left ventricle
- C: Auricle
- D: Aorta

**15. All reptiles have incompletely partitioned ventricles except?**

- A: Lizard
- B: Snake
- C: Tuatra
- D: Crocodile

**16. Mature mammalian red blood cells do not have:**

- A: Red colour
- B: Nucleus
- C: Fluids
- D: Haemolglobin

**17. The right atrium of heart usually recieves the ?**

- A: Deoxygenated blood
- B: Oxygenated blood
- C: Filtered blood
- D: Non-filtered blood

**18. What is the duration of 1 complete heart beat in the humans?**

- A: 0.6 sec
- B: 0.7 sec
- C: 0.8 sec
- D: 0.9 sec

**19. Most ions are taken up by the roots by which of the following processes?**

- A: Active transport
- B: Passive transport
- C: Facilitated diffusion
- D: Diffusion

**20. Which of the following cells are the highest in number in the human blood?**

A: Monocytes
B: Red blood cells
C: Platelets
D: Lymphocytes

TEST 2

**1. In human heart, the blood passes from left atrium to left ventricle through?**

A: Tricuspid valve
B: Aortic valve
C: Bicuspid valve
D: Pulmonary valve

**2. The rate of transpiration doubles by every rise of ____ in temperature?**

A: 5 degree centigrade
B: 10 degree centigrade
C: 20 degree centigrade
D: 25 degree centigrade

**3. Which of the following statement about the structure of human heart is correct?**

A: Wall of left ventricle is thicker than that of the right ventricle.
B: Wall of left ventricle is thinner than that of the right ventricle.
C: Wall of left ventricle has same thickness as that of the right ventricle.
D: Walls of the atria are thicker than that of the ventricles.

**4. Strength to the cell wall of xylem is provided by which of the following?**

A: Chitin
B: Peptidoglycan
C: Lignin
D: Keratin

**5. Right atrium is separated from right ventricle by:**

A: Semilunar valve
B: Tricupsid valve
C: Bicupside valve
D: Septum

**6. In the root cells, the cytoplasmic strands that extend through pores in adjacent cell walls are known as?**

A: Microvilli
B: Plasmodesmata
C: Pseudopods
D: Pilli

**7. The human heart is enclosed in a double membranous sac called?**

A: Pericardial cavity
B: Pleural cavity
C: Peritoneal cavity
D: Meninges

**8. Which of the following white blood cells destroy small particle by phagocytosis?**

A: Basophils
B: Eosinophils
C: Lymphocytes
D: Neutrophils

**9. Which vein carry oxygenated blood?**

A: Renal vein
B: Subclavian vein

C: Jugular vein

D: Pulmonary vein

**10. In human transport system, the exchange of materials happens in which of the following?**

A: Arteries

B: Veins

C: Capillaries

D: All of the above.

**11. How much surface area of the root is provided by the root hair?**

A: 58%

B: 67%

C: 73%

D: 78%

**12. Which of the following is not a function of blood?**

A: Transport of gases

B: Maintain body temperature

C: Production of red blood cell

D: Provide immunity

**13. All veins carry deoxygenated blood except?**

A: Superior vena cava

B: Inferior vena cave

C: Pulmonary veins

D: Hepatic veins

**14. Oedema is caused by the salt and water retention by which of the following organ?**

A: Liver

B: Spleen

C: Kidney

D: Intestines

**15. Imbibation may result in the volume increase of dry seeds by how many times?**

A: 100 times

B: 200 times

C: 300 times

D: 400 times

**16. The lymphatic vessels of the body empty the lymph into the blood stream at the:**

A: Bile duct

B: Subclavian vein

C: Abdominal vein

D: Jugular vein

**17. The composition of materials flowing in the phloem has been studied by using which of the following insects?**

A: Mosquito

B: Housefly

C: Aphids

D: Tady bug

**18. Cuticular transport accounts for approximately what percentage of total transpiration in the plants?**

A: 2-4%

B: 5-7%

C: 7-9%

D: 4-6%

1. **At very high temperature a hormone abscisic acid is released by which one of the following cells?**

A: Guard cell
B: Mesophyll cell
C: Epidermal cell
D: Xylem cell

2. **Sinus venousus in the fish receives which of the following?**

A: Oxygenated blood from body
B: Deoxygenated blood from body
C: Oxygenated blood from gills
D: All of the above.

3. **Heparin - a substance that inhibit blood clotting is produced by which of the following cells?**

A: Basophils
B: Platelets
C: Monocytes
D: Eosinophils

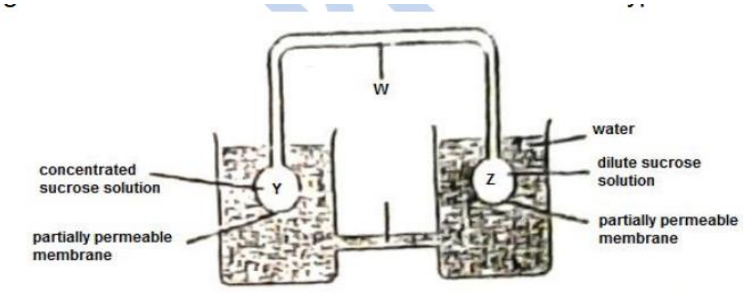
4. **The largest lymph duct called thoracic lymph duct drains into ?**

A: Subclavian vein
B: Renal vein
C: Pulmonary vein
D: Hepatic portal vein

5. **Right atrium is separated from right ventricle by :**

A: Biscuspid valve
B: Semilunar valve
C: Tricuspid valve
D: Interatrial septum

6. **The diagram shows a model to demonstrate the mass flow hypothesis of translocation**




**In a plant, what are the structures W, X, Y and Z what is the direction of flow of solution along W?**

| | Phloem | Xylem | Roots | Leaves |
|---|---|---|---|---|
| A | W | X | Y | Z |
| B | W | X | Z | Y |
| C | X | W | Y | Z |
| D | X | W | Z | Y |

A: A
B: B
C: C
D: D

**7. Which of the following statement regarding veins is not correct?**

A: Veins carry blood from body to heart.
B: Veins have valves.
C: Pulse can be felt on the veins.
D: Veins have few elastic fibers.

**8. Different types of white blood cells in the humans are physically distinguished on the basis of which of the following?**

A: Color and shape
B: Shape of nucleus and thickness of cell wall
C: Shape of nucleus and density of granules
D: Number of nucleus and density of granules

**9. The oxygenated blood from lungs to heart is transported via?**

A: Pulmonary artery
B: Coronary artery
C: Pulmonary vein
D: Hepatic artery

**10. Mixing of oxygenated and deoxygenated blood occurs in which of the following organisms?**

A: Amphibians
B: Fish
C: Reptiles
D: Human

**11. What is Tonoplast?**

A: Membrane of cell
B: Membrane of mitochondria
C: Membrane of vacuole
D: Membrane of endoplasmic reticulum

**12. Leukaemia results from uncontrolled production of which one of the following cells?**

A: White blood cells
B: Red blood cells
C: Platelets
D: All of the above

**13. Sieve tubes and companion cells communicate with each other through which of the following?**

A: Pseudopods
B: Sieve pores
C: Stomata
D: Plasmodesmata

**14. Which of the following cell type are the biggest composition of the white blood cells?**

A: Basophils
B: Lymphocytes
C: Neutrophils
D: Monocytes

**15. In the cell wall of plant cells, which of the following components is not involved in imbibition?**

A: Cellulose
B: Pectin
C: Chitin
D: Lignin

**16. Which of the following is a genetically transmitted abnormality of haemoglobin?**

A: Leukaemia
B: Thalassaemia
C: Oedema
D: Leucopenia

**17. Inner side of bean shaped gaurd cell is?**

A: Concave and has a thick wall
B: Concave and has a thin wall
C: Convex and has a thick wall
D: Convex and has a thin wall

**18. Which white blood cells are the least in number amongst the five types of Leucocytes?**

A: Basophils
B: Eosinophils
C: Monocytes
D: Lymphocytes

**19. Interconnected system of arteries, veins and capillaries is present in which of the following?**

A: Hydra
B: Planaria
C: Earthworm
D: Cockroach

**20. Inferior vena cava is formed by the union of which of the following?**

A: 2 venal veins
B: 2 femoral veins
C: 2 hepatic veins
D: 2 iliac veins

TEST 4

**1. What is the normal systolic blood pressure in the human beings?**

A: 110 mmHg
B: 120 mmHg
C: 130 mmHg
D: 140 mmHg

**2. Lenticels are aerating pores present in which part of the plants?**

A: Leaves
B: Bark
C: Roots
D: Flowers

**3. Pure water has the maximum water potential. The value of that maximum water potential is?**

A: Zero
B: 1
C: 10
D: 100

**4. Which of the following has the highest blood pressure?**

A: Arteries
B: Veins
C: Capillaries
D: They all have the same blood pressure.

**5. Carrier molecules involved in facilitating diffusion are?**

- A: Lipids
- B: Lipoproteins
- C: Proteins
- D: Carbohydrates

**6. Which one of the following is a precursor of steroid hormones?**

- A: Glucose
- B: Lipoprotein
- C: Phospholipid
- D: Cholesterol

**7. In human heart, conduction of electrical impulse from SA node to AV node takes place in how much time?**

- A: 0.15 sec
- B: 0.16 sec
- C: 0.17 sec
- D: 0.18 sec

**8. Which of the following statement regarding the four chambers of the human heart is correct?**

- A: Two lower atria are thick walled and two upper ventricles are thin walled
- B: Two lower atria are thin walled and two upper ventricles are thick walled
- C: Two upper atria are thick walled and two lower ventricles are thin walled
- D: Two upper atria are thin walled and two lower ventricles are thick walled

**9. What is the normal pH of human blood?**

- A: 6.8
- B: 7.0
- C: 7.2
- D: 7.4

**10. Which of the following statement regarding Red Blood Cells (RBCs) is correct?**

- A: They can divide through out their life cycle.
- B: They can divide only when they are 2 months old.
- C: They can divide when they are mature.
- D: Mature RBCs do not divide.

**11. The type of agranulocyte that stays in blood for a few hours and then enters tissue and becomes macrophages is called ?**

- A: Lymphocytes
- B: Monocytes
- C: Eosinophil
- D: Basophils

**12. The rate of diffusion for sugar movement in the phloem is approximately?**

- A: 1 meter per six years
- B: 1 meter per seven years
- C: 1 meter per eight years
- D: 1 meter per nine years

**13. What is the location of Casparian strips?**

- A: Cells of xylem
- B: Cells of pericycle
- C: Epidermal cells of roots
- D: Endodermis cells of roots

**14. In the lymphatic system, the thoracic lymph duct opens in which of the following veins?**

- A: Juglar vein
- B: Superior vena cava
- C: Sub clavian vein
- D: Inferior vena cava

**15. Plants open their stomata by activitely pumping _____, into the gaurd cells?**

- A: Potassium ions
- B: Sodium ions
- C: Chloride ions
- D: Magnesium ions

**16. After their life span of four months is over, the red blood cells are disintegrated in which of the following organs?**

- A: Kidneys and lungs
- B: Lungs and spleen
- C: Pancreas and liver
- D: Liver and spleen

**17. The average life span of red blood cells is about:**

- A: Two months
- B: One months
- C: Five months
- D: Four months

**18. Which one of the following pathways of water absorption become discontinous in the endodermis?**

- A: Vacuolar pathway
- B: The sysmplast pathway
- C: The apoplast pathway
- D: All of the above

**19. What percentage of water pulled up in the leaves is transpired?**

- A: 99%
- B: 90%
- C: 83%
- D: 1%

**20. Which one of the following is not a lymphoid organ?**

- A: Tonsils
- B: Thymus
- C: Bone marrow
- D: Spleen

IMMUNITY
TEST 1

**1. How many types of immunities are there?**

- A: 2
- B: 3
- C: 4
- D: 5

**2. Which of the following diseases affect the immunity system?**

- A: Polio
- B: Measles
- C: Cancer
- D: AIDS

**3. In -------- response, B cells produce plasma cells that synthesize antibodies and release in blood and plasma tissue.**

A: Cell Mediated
B: Humoral
C: Hormonal
D: Phototactic

**4. Antigen is a foreign protein or any other molecule which stimulates the formation of:**

A: MHC complex
B: Immunogen
C: Antibodies
D: Mucus

**5. What is the primary function/s of vaccination?**

A: Treat a disease.
B: Strengthen phagocytes.
C: Develop immunity against a disease.
D: All of the above.

**6. In passive immunity which of the following components is injected into the blood ?**

A: Antigen
B: Immunogen
C: Serum
D: Immunoglobulin

**7. Mucous membranes are part of body defence system and they offer**

A: Physical barrier
B: Mechanical barrier
C: Chemical barrier
D: Biological barriers

**8. Immediate protection is obtained from ?**

A: Passive immunity
B: Active immunity
C: Vaccination
D: Natural active immunity

**9. Which of the following forms the plasma cell clone?**

A: Lymphocytes T
B: Lymphocytes B
C: Both Lymphocytes B and T
D: Neither Lymphocytes B nor T

**10. Treatment by using attenuated cultures of bacteria is called :**

A: Chemotherapy
B: Sterilization
C: Antiseptics
D: Vaccination

**11. AIDs is caused by which of the following?**

A: Bacteria
B: Virus
C: Fungus
D: Protozoa

**12. B- Lymphocytes are named because of their relationship to :**

A: Bile Duct
B: Bone Marrow
C: Blood
D: Bursa of fabricus

**13. Which of the following are the components of immune system?**

A: Lymphocytes B
B: Lymphocytes T

C: Monocytes

D: Both A and B

TEST 2

**1. which one of the following is the most numerous white blood cells?**

A: Eosinophils

B: Monocytes

C: Neutrophils

D: Lymphocytes

**2. Antibodies vanish quickly in what kind of immunity?**

A: Active immunity

B: Passive immunity

C: Natural induced immunity

D: Auto immune response

**3. Injection of antisera is an example of?**

A: Active immunity

B: Passive immunity

C: Natural induced immunity

D: Auto immune response

**4. Thymus gland is involved in the maturation of ?**

A: Platelets

B: B-lymphocytes

C: Eosinophils

D: T-lymphocytes

**5. Antibodies are produced against invading cells by:**

A: Lymphocytes

B: Eosinophils

C: Basophils

D: Neutrophils

**6. T-LYMPHOCYTE recognise and attack microorganisms or transplanted organ and tissues. This effect is called :**

A: Cell Mediated response

B: Humoral immunity response

C: Active immunity

D: Passive immunity

**7. What is the main function of immunity?**

A: Help in adaptation.

B: Maintain the internal body environment.

C: Prevent or limit infections.

D: All of the above.

**8. Antibodies are formed by which of the following cells?**

A: T-cells

B: B-cells

C: Macrophages

D: Neutrophils

**9. In passive immunity which of the following components are injected into body?**

A: Immunoglobulins

B: Antigens

C: Immunogens

D: Saliva

**10. What is/are the machanism/s which defend the body against foreign invaders?**

- A: Physical barriers
- B: Phagocytes
- C: Immune system
- D: All of above

**11. Which part of antibody recognizes the antigen during immune response?**

- A: Heavy part
- B: Variable part
- C: Light part
- D: Constant part

**12. What type of immunity is achieved by injecting antibodies.**

- A: Active immunity
- B: Passive immunity
- C: Artificially induced immunity
- D: Naturally induced immunity

**13. Snake bite is treated with which type of immunization?**

- A: Active
- B: Passive
- C: Humoral
- D: Specific

**14. T lymphocyte become mature and competent under the influence of:**

- A: Bursa of fabricus
- B: Thymus gland
- C: Spleen
- D: Liver

**15. Which part of antibody recognises the antigen during immune response?**

- A: Heavy part
- B: Light part
- C: Constant part
- D: Variable part

**16. How many types of antibodies are there?**

- A: 2
- B: 3
- C: 4
- D: 5

**17. Two identical light chains and Two identical heavy chains in antibody molecule are linked by:**

- A: Disulfied bridges (S-S)
- B: Peptide bond
- C: Glycosidic bond
- D: Ionic bond

**18. Vaccination is an example of what kind of immunity?**

- A: Active immunity
- B: Passive immunity
- C: Natural induced immunity
- D: Auto immune response

**19. What is a disadvantage of passive immunity?**

- A: It is specific.
- B: Response produced is immediate.
- C: It is short lived.
- D: Consist of antibodies only.

**20. Antigens are often which kind of biological molecules?**

- A: Lipids
- B: Carbohydrates
- C: Complex of carbohydrates and lipoproteins
- D: Proteins

TEST 3

1. **Skin and mucous membrane are part of the body defense system and they form the:**

- A: Mechanical barriers
- B: Physical barriers
- C: Chemical barriers
- D: Bilological barriers

2. **What kind of immunization shall you reommend for tetanus?**

- A: Natural induced immunity
- B: Auto immune response
- C: Active immunity
- D: Passive immunity

3. **Antobodies are produced by which of the following lymphocytes?**

- A: A lymphocytes
- B: B lymphocytes
- C: T lymphocytes
- D: B and T lymphocytes

4. **Response of the body against transplanted organ is**

- A: Homeostatic response
- B: Behavioral response
- C: Primary response
- D: Cell mediated response

5. **How many types of polypeptide chains are present in lgG antibodies?**

- A: 4
- B: 5
- C: 6
- D: 7

6. **In the structure diagram of an antibody molecule which portion is occupied by variable chains?**

- A: Lower region
- B: Upper region
- C: Middle region
- D: In between chains

7. **Antigen binding site of antibody consists of?**

- A: Constant portion of heavy and light chains.
- B: Variable portion of light and heavy chains.
- C: Variable portion of heavy chains only.
- D: Constant portion of light chains only.

8. **Antibodies are proteins and made up of how many polypeptide chains?**

- A: 1
- B: 2
- C: 3
- D: 4

**9. Passive immunity is used against**

A: Malaria
B: Typhoid
C: Dengue
D: Tetanus

**10. Which gland plays an important part in making T-cells immunologically competent?**

A: Thyroid gland
B: Pituitary gland
C: Thymus gland
D: Adrenal gland

**11. Which of the following statement is true?**

A: Humoral immune response involves antibodies while cell mediated response does not involve antibodies.
B: Humoral immune response does not involves antibodies while cell mediated response involve antibodies.
C: Both humoral immune response and cell mediated response involve antibodies.
D: Neither humoral immune response nor cell mediated response involve antibodies.

**12. Which one of the following glands is involved in the production of lymphocytes?**

A: Pineal
B: Pituitary
C: Thymus
D: Adrenal

**13. An antibody molecule contains four polypeptide chains which are linked through ?**

A: Hydrogen bond
B: Ionic bond
C: Covalent bond
D: Disulphide bond

**14. Which of the following is not a component of cell mediated immunity?**

A: Helper T-cells
B: Cytotoxic T-cells
C: Macrophages
D: Plasma cells

TEST 4

**1. The immunity in which T-cells recognize the antigen or microorganism is called ?**

A: Tissue grafting
B: Phagocytosis
C: Cell mediated immunity / response
D: Humoral immunity / response

**2. Lymphocyte B is related with which of the following?**

A: Thymus gland
B: Bacteria
C: Bursa of Fabricius
D: None of the above.

EXCERTION & OSMOREGULATION
TEST 1

**1. Main component of flame cells responsible for excretion is ?**

- A: Cilia
- B: Flagella
- C: Flame
- D: Fluid

**2. 'Cleaning of blood' refers to ?**

- A: Hemodialysis
- B: Lithotripsy
- C: Liposuction
- D: Amputation

**3. In cockroaches , nitrogenous wastes are excreted via which structure?**

- A: Nephrostome
- B: Rectum
- C: Skin
- D: Anus

**4. Antidiuretic hormone helps in reabsorbtion of water by changing permeability of ?**

- A: Proximal tubule
- B: Distal tubule
- C: Collecting duct
- D: Loop of henle

**5. Ascending loop of henle is impermeable to ?**

- A: Water
- B: Na ions
- C: Glucose
- D: Drugs

**6. Fever is caused by chemicals produced by cells called ?**

- A: Heat shock proteins
- B: Pyrogens
- C: Aldosterone
- D: Toxins

**7. Which of the following is the major hormone released from posterior pituitary?**

- A: Aldosterone
- B: ADH
- C: Prolactin
- D: FSH

**8. Freezing temperature kills cells by ?**

- A: Super cooling the cytosol
- B: Ice crystal formation
- C: Degenarating lipids
- D: Increasing proportion of unsaturated fatty acids

**9. The mechanism of regulation generaly between organism and its environment of solute and gain and loss of water is called?**

- A: Excretion
- B: Osmoregulation
- C: Coordination
- D: Thermoregulation

**10. All useful constituents of glomerular fitrate are reabsorbed in ?**

A: Glomerulus
B: Proximal tubule
C: Loop of henle
D: Collecting duct

**11. Plumage fluffing is a ?**

A: Structural adaptation
B: Physiological adaptation
C: Behavioral adaptation
D: Psychological adaptation

**12. Which of the following is a function of liver ?**

A: Storage
B: Synthesis
C: Recycling
D: They are all functions of liver.

**13. Basic functional unit of kidney is ?**

A: Nephron
B: Pelvis
C: Ureter
D: Cortex

**14. Uricotelics include?**

A: Fishes
B: Amphibians
C: Mammals
D: Reptiles

**15. Reabsorbtion of water by counter current multiplier mechanisms takes place at ?**

A: Proximal tubule
B: Distal tubule
C: Collecting duct
D: Loop of henle

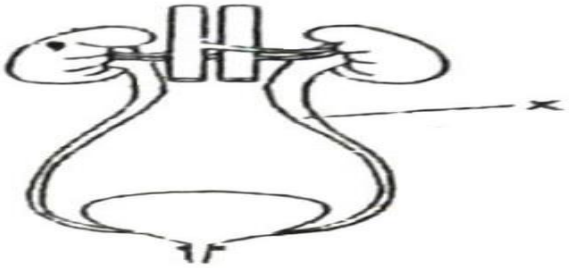
**16. Major exretory product in plants in their photosynthetic mode is?**

A: Carbon dioxide and water
B: Ammonia
C: Urea
D: Oxygen

**17. Which function of liver is responsible for its link with kidneys in excretion?**

A: Storage
B: Detoxification
C: Conversion
D: Recycling

**The diagram shows the human urinary system.**




**18. Which substances is not found in the liquid at in x in a healthy person?**

A: Glucose
B: Salt

C: Water

D: Protein

**19. Which of these is not a heat loss mechanism ?**

A: Radiation

B: Evaporation

C: Sweating

D: Shivering

**20. Isotonic environment results in normal cell because?**

A: External environment is more concentrated than internal

B: Internal environment is more concentrated than external

C: Concentration of both internal and external environment is different

D: Concentration of both internal and external environment is same

TEST 2

**1. Major role of sweat glands is ?**

A: Excretion of nitrogenous wastes

B: Thermoregulation

C: Protection against microorganism

D: Detoxification

**2. Which of these is not a structural adaptation for heat regulation ?**

A: Panting

B: Plumage fluffing

C: Sweat glands

D: Pelage

**3. What will be the adaptation to regulate osmotic balance in fresh water environment?**

A: Discharging excess water

B: Excreting more salt

C: Excreting less water

D: Both B and C

**4. Which one of the following is the main nitrogenous waste product in humans?**

A: Urea

B: Ammonia

C: Salts

D: Uric acid

**5. Reabsorption of useful constituents takes place in?**

A: Proximal Tubule

B: Distal tubule

C: Bowman's Capsule

D: Glomerulus

**6. How many iodine atoms are present in thyroxine?**

A: 3

B: 4

C: 2

D: 5

**7. Amount of water for excretion of 1g of nitrogen as uric acid is?**

A: 500ml

B: 100ml

C: 50ml

D: 1ml

**8. What are the 2 types of dialysis ?**

- A: Hemodialysis and perineal dialysis
- B: Thoracic and peritoneal dialysis
- C: Peritoneal and perineal dialysis
- D: Hemodialysis and peritoneal dialysis

**9. Aldosterone helps in conservation or active absorbtion of ?**

- A: Sodium
- B: Calcium
- C: Potassium
- D: Bicarbonate ion

**10. Ammonia is the main excretory product in which animals?**

- A: Freshwater animals
- B: Birds
- C: Insects
- D: Terrestrial mammals

**11. Which part of the plants is called excretophores ?**

- A: Trunk
- B: Branches
- C: Leaves
- D: Stalk of bulb

**12. Blood enters the glomerulus through:**

- A: Afferent arteriole
- B: Efferent arteriole
- C: Renal vein
- D: Renal artery

**13. Maximum reabsorbtion takes place in which part of the nephron?**

- A: Distal tubule
- B: Villi
- C: Cortical tissue
- D: Proximal tubule

**14. Anhydrobiosis is main characteris tics of ?**

- A: Marine animals
- B: Freshwater animals
- C: Terrestrial animals
- D: Both A and B

**15. Ejection of milk from mammary glands is under the control of which hormone?**

- A: Androgen
- B: Oxytocin
- C: Progesterone
- D: Estrogen

**16. Alpha cells of pancreas secrete a hormone called :**

- A: Glucagons
- B: Insulin
- C: Gastrin
- D: Renin

**17. Which part of the trees store strange chemicals deposited in old xylem and no longer used for water transport?**

- A: Ebony
- B: Pholem
- C: Secondary xylem
- D: Roots

**18. In oaks and maples, extreme low temperature is tolerated by ?**

A: Ice crystal formation in protoplasm
B: Super cooling of cytosol
C: Increasing proportion of unsaturated fatty acids
D: Decreasing proportion of unsaturated fatty acids

**19. Response of cell when placed in a hypertonic solution will be?**

A: Turgid cell
B: Normal cell
C: Shrunken cell
D: Cell burst

**20. Amount of water required to excrete 1g of nitrogen as urea is?**

A: 500ml
B: 100ml
C: 50ml
D: 1ml

TEST 3

**1. Which one of the following is a steroid hormone?**

A: Glucagon
B: Thyroxine
C: Epinephrine
D: Oestrogen

**2. Which of the following is capable of varying degrees of endothermic heat production but generally do not regulate their body temperature within a narrow range?**

A: Reptiles
B: Frogs
C: Bats
D: Flying insects

**3. In nephron, the cup shaped swelling around ball of capillaries is called ?**

A: Bowmann's capsule
B: Glomerulus
C: Loop of henle
D: Vasa recta

**4. In cactus, the main photosynthetic organ is?**

A: Stem
B: Roots
C: Leaves
D: Horns

**5. The gonadotrophic hormone of anterior pituitary are**

A: Prolactin, TSH, Somatotrophin hormone
B: FSH, LH , Prolactin
C: ACTH, LH, FSH
D: LH, FSH, TSH

**6. Saliva and urine for evaporative cooling is used by which of the following?**

A: Dogs
B: Bats
C: Reptiles
D: Toads

**7. Which one of the following is responsilble for the production of concentrated urine?**

A: Proximal tubule
B: Distal tubule
C: Bowman's capsule
D: Glomerulus

**8. In excess water supply, reabsorbtion of water is reduced by ?**

A: Release of antidiuretic hormone
B: Inhibition of ADH release
C: Counter current mechanism
D: Both A and C

**9. Most marine invertebrates are?**

A: Osmoconformers
B: Hypertonic as compared to environment
C: Hypotonic as compared to environment
D: Isotonic

**10. Loss of salt in freshwater animals as in fishes is compensated by?**

A: Active uptake of salts by gills and skin
B: Retention of urine in body
C: Preference of salt containing food
D: Both A and C

**11. Aldosterone is basicaly involved in the uptake of ?**

A: Sodium
B: Chloride
C: Glucose
D: Water

**12. With each heart beat what percentage of total blood is supplied to the kidneys?**

A: 10%
B: 1%
C: 20%
D: 30%

**13. What are three components of mechanism of heomostatic regulations?**

A: Sensory, motor and associative neurons
B: Receptors, control center and effectors
C: CNS, peripheral nervous system and diffused nervous system
D: Cerebrum, cerebellum and pons

**14. Those nephrons which are present along the border of cortex and medulla are called :**

A: Juxtamedullary nephrons
B: Cortical nephrons
C: Internal nephrons
D: The tissue of cortex

**15. Metabolism of purines and pyramidines doesn't produce?**

A: Hypoxanthine
B: Uric acid
C: Allantoin
D: Creatinine

**16. Lower internal salt concentration than sea water is maintained in most?**

A: Marine invertebrates
B: Cartilage fishes
C: Bony fishes
D: Both B and C

**17. When water is in short supply increased water retention occurs through :**

A: Corticol Nephrons
B: Proximal Convulated tubule
C: Juxtamedullary nephrons
D: Tissue of cortex

**18. What is the most likely response of hypothalamus to the rising temperature?**

A: Activate sekeletal muscles
B: Divert blood from skin to deeper tissues
C: Close sweat glands
D: Dilate skin bood vessels

**19. Cells of Bowmann's capsule lining are called ?**

A: Podocytes
B: Astrocytes
C: Fibroblasts
D: Nephrocytes

**20. Plants respond to cold stress by ?**

A: Increasing proportion of unsaturated fatty acids
B: Decreasing proportion of saturated fatty acids
C: Decreasing water uptake
D: Increasing metabolism

TEST 4

**1. ADH is released from :**

A: Anterior Pituitary
B: Posterior Pituitary
C: Hypothalamus
D: Thalamus

**2. Filtration occurs at which part of nephrons ?**

A: Glomerulus
B: Loop of henle
C: Collecting tubule
D: Convulated tubule

**3. Conservation of water in the kidney is done by ?**

A: Counter current mechanism
B: Hormonal mechanism
C: Conservation mechanism
D: Both A and B

**4. Which product of liver is responsible for blood clotting ?**

A: Glycogen
B: Cholestrol
C: Bile
D: Plasma protein

**5. The term thermoregulation implies to?**

A: Fixed internal temperature
B: Regulation of solutes
C: Regulation of water
D: Maintainace of internal temperature within tolerable range

**6. In nephrons, counter current multiplier occurs at :**

A: Loop of henle
B: Collecting duct

C: Bowman's capsule
D: Glomerulus

**7. Thyroxine deficiency in adults results in a condition called :**

A: Cretinism
B: Hypothyroidism
C: Thyrotoxicosis
D: Myxedema

**8. What is responsible for interstitial fluid concentration as it goes from cortex to medulla ?**

A: Release of ADH
B: Counter current multiplier
C: High filtration pressure
D: Excessive water intake

**9. Breaking of kidney stones into tiny pieces by shock waves is called ?**

A: Dialysis
B: Lithotripsy
C: Liposuction
D: Leprotemy

**10. Where are waste products deposited in conifers?**

A: Leaves which fall in autumn
B: Stalk of bulb
C: Trunk
D: Secreted into soil

**11. When filtrate passes from descending loop of henle, which constituent is reabsorbed the most ?**

A: Na ions
B: Glucose
C: Water
D: Drugs

**12. Active pumping of $Na^+$ occurs at which part of nephron?**

A: Proximal tubule
B: Ascending limb of loop of Henle
C: Descending limb of loop of Henle
D: Collecting duct

**13. Metanephridium is excretory system in ?**

A: Cockroach
B: Flatworms
C: Earthworms
D: Vertebrates

**14. Which one of the following parts of excretory system in human act as Counter-Current Multiplier?**

A: Kidney
B: Cortex
C: Medulla
D: Loop of Henle

**15. Property of a system in which variables are regulated so that internal conditions remain stable and relatively constant is called?**

A: Osmoregulation
B: Functional organization
C: Hypothalamism
D: Homeostasis

**16. Primary structure for eliminating wastes in humans is ?**

A: Kidney
B: Liver

C: Skin

D: Both A and B

**17. Which part of kidney is specificaly instrumental in production of concentrated urine?**

A: Cortical nephrons

B: Juxtamedullary nephrons

C: Pelvis

D: Ureter

**18. Which one is not synthesized by liver ?**

A: Plasma proteins

B: Urea

C: Lipoprotein

D: Blood cells

**19. Heat shock proteins prevent enzyme degeneration by ?**

A: Breaking enzymes into smaller pieces

B: Embracing them

C: Attaching them to organelles

D: Increasing there activities

**20. Collecting tubules of nephrons open into ?**

A: Cortex

B: Pelvis

C: Ureter

D: Medulla

SUPPORT & MOVEMENTS

TEST 1

**1. Which one of the following is not a growth movement?**

A: Epinasty

B: Hyponasty

C: Geotropism

D: Nutation

**2. Which of the following muscle is an antagonistic member of Biceps brachii?**

A: Bracheoradialis

B: Brachialis

C: Extensor muscle of the forearm

D: Triceps

**3. Which of the following plays the major role in providing support to young herbaceous part of the plant?**

A: Epidermis with higher turgor pressure

B: Cells of cortex

C: Collenchyma cells

D: Sclerenchyma cells

**4. Which of the following is a ball and socket joint?**

A: Elbow

B: Knee

C: Shoulder

D: Both B and C.

**5. Elbow joint is an eample of?**

A: Fibrous joint

B: Ball & socket joint

C: Cartilaginous joint

D: Hinge joint

**6. Psychological inability to contract muscles is known as?**

A: Muscle disorder.
B: Muscle fatigue.
C: Tetany
D: Cramp.

**7. Which one of the following is a bone of axial skeleton?**

A: Femur
B: Rib
C: Radius
D: Clavide

**8. Skeletal muscle has how many parts?**

A: 5
B: 4
C: 3
D: 2

**9. An increase in plant girth due to activity of _____ is called secondary growth?**

A: Cork cambium
B: Pith
C: Vascular cambium
D: Both A and C

**10. Which of the following animal has a hydrostatic skeleton?**

A: Earthworm
B: Round worm
C: Tape worm
D: Pin worm

**11. Each end of muscle is attach to the bone by which of the following?**

A: Ligament
B: Tendon
C: Fascia
D: Connective tissue

**12. Muscles are made up of many cells which are referred as?**

A: Myofilaments
B: Myofibrils
C: Sarcolemma
D: Muscle fibers

**13. Locomotion in planaria is due to which of the following?**

A: Jet propulsion
B: Accordion like movement
C: Cilary movement
D: None of above

**14. How many vertebrae are present in coccyx?**

A: 7
B: 12
C: 5
D: 4

**15. The pigment which stores oxygen in muscles is ?**

A: Hemoglobin
B: Myoglobin
C: Myosin
D: Actinomyosin

**16. Rigor mortis i.e stiffening of body after death results from which of the following?**

A: Accumulation of rigid protein molecule in sarcoplam

B: Unavailability of ATP, which is necessary to break the link between actin and myosin

C: Decrease in body temprature after death

D: All of the above

**17. Collagen fibers of bones are harden by the deposition of which of the following?**

A: Calcium phosphate

B: Calcium carbonate

C: Calcium sulphate

D: Both A and B

**18. Which of the following attach bone to bone?**

A: Tendons

B: Ligaments

C: Skeletal muscle

D: Any of the above dependent on the bones.

**19. Which of the following is the largest bone in the human body?**

A: Femur

B: Sternum

C: Scapula

D: Humerous

**20. Which of the following statements about fractures in old age is incorrect?**

A: They are more common than in adult age

B: Occur as a result of bone being hin and weak

C: Due to good blood supply it results in quick healing

D: All of them are correct.

TEST 2

**1. According to sliding filament theory, when muscle fibers are stimulated by nervous system, which of the following changes occur?**

A: I-bands shorten

B: H-zone become visible

C: Z-lines move further apart

D: A-bands broaden

**2. How many bones are involved in the formation of each half of pelvic girdle?**

A: 4 bones

B: 3 bones

C: 2 bones

D: 1 bones

**3. Endoskeleton consist of bone and cartilage is secreted by?**

A: Ectoderm

B: Endoderm

C: Mesoderm

D: All of the above

**4. Roots of the plant show which of the following behavior?**

A: Positive phototropism and negative geotropism

B: Negative phototropism and positive geotropism

C: Negative tactic movement and positive tropic movement

D: None of these

**5. How many bones are there in adult human body?**

A: 206
B: 208
C: 248
D: 270

**6. How many bones are present in the wrist?**

A: 4 bones
B: 6 bones
C: 8 bones
D: 10 bones

**7. Which of the following cause most of the increase in the thickness of stem ?**

A: Primary xylem
B: Primary phloem
C: Secondary xylem
D: Secondary phloem

**8. The proximal bone in hip joint is?**

A: Tibia
B: Fibula
C: Tarsal
D: Femur

**9. Which of the following contributes to muscle fatigue?**

A: Relative deficit of ATP.
B: Accumulation of lactic acid.
C: Ionic imbalance.
D: All of the above.

**10. Which one of the following is plantigrade?**

A: Rabbit
B: Horse
C: Carnivor
D: Monkey

**11. The length of the myofibril from one Z-band to the next is describe as:**

A: Sarcolemma
B: Sarcoplasm
C: Muscle fibre
D: Sarcomere

**12. Which part of the skeletal muscle moves the bone?**

A: Origin
B: Insertion
C: Belly
D: Both A and B.

**13. What is the diameter of thick filament myosin?**

A: 7nm
B: 8nm
C: 16nm
D: 10-100um

**14. Which of the following is the first process after a bone fracture?**

A: Remodeling
B: Bony callus formation.
C: Callus formation.
D: Hematoma formation.

**15. A smallest contractile unit of muscle contraction called sarcomere is the area between two?**

- A: H-zone
- B: M-line
- C: Z-line
- D: Z-line and H-line

**16. Which of the following joint has the highest degrees of movement?**

- A: Hinge joint
- B: Cartilaginous joint
- C: Fibrous joint
- D: Ball and Socket joint.

**17. Vascular cambium initially appears as actively dividing cells between?**

- A: Primary xylem and secondary xylem
- B: Primary xylem and secondary phloem
- C: Primary xylem and primary phloem
- D: Secondary xylem and secondary phloem

**18. Which of the following is the most swift form of the locomotion?**

- A: Plantigrade
- B: Digitigrade
- C: Unguligrade
- D: Both B and C.

**19. Human and mammalian skeleton can be divided into two parts, axial skeleton and:**

- A: Appendicular skeleton
- B: Exo skeleton
- C: Endo skeleton
- D: Hydrostatic skeleton

**20. Tetany is caused by which of the following?**

- A: Hypocalcemia
- B: Hypercalcemia
- C: Clostridum tetani
- D: Hypophosphatemia

TEST 3

**1. The most important function of troponin is?**

- A: To cover the binding sites on actin molecule
- B: To bind with tropomyosin
- C: To bind with Ca ions
- D: All of the above

**2. Insertion of brachialis is in which of the following?**

- A: Ulna
- B: Radius
- C: Shaft of radius
- D: Olecronon process of ulna

**3. First vertebra of cervical region of vertebral column is known as:**

- A: Axis
- B: Sacral
- C: Thoracic
- D: Atlas

4. **In human the number of _____ vertebrae is 7.**

- A: Cervical
- B: Thoracic
- C: Lumber
- D: Sacrum

5. **Which of the following bones are present in the palm of the human hand?**

- A: Carpals
- B: Metacarplas
- C: Phalanges
- D: Both A and B

6. **Which of the following muscles have only single nuclei cells?**

- A: Smooth muscles
- B: Cardiac muscles
- C: Skeletal muscles
- D: All of the above.

7. **Which one of the following cartilage is the most abundant in human body?**

- A: Elastic
- B: Chondrous
- C: Fibro
- D: Hyaline

8. **Which of the following statement is true about the bands of sarcomere?**

- A: Both A band and I band are anisotropic.
- B: Neither A band nor I band is anisotropic.
- C: Only I band is anisotropic
- D: Only A band is anisotropic.

9. **Which of the following defines Ecdysone?**

- A: An enzyme that digest endocuticle during an arthropodal ecdysis
- B: A newly formed exoskeleton in arthropods
- C: A harmone that regulates moulting in arthropods
- D: None of the above

10. **Which one of the following cells is responsible for the formation of bone?**

- A: Osteoblast
- B: Osteoclast
- C: Osteocytis
- D: None of these

11. **During high metabolic activity, approximately what percentage of lactic acid is broken aerobically?**

- A: 80%
- B: 60%
- C: 40%
- D: 20%

12. **One of the following is a sign of tetanus?**

- A: Flaccid paralysis
- B: Stiffness of jaw and neck muscles
- C: Tremors
- D: Muscles pain

13. **During which of the following process in bone fracture repair, osteoblasts and osteoclasts migrate inward and multiply rapidly?**

- A: Hematoma formation
- B: Callus formation
- C: Bony callus formation.
- D: Remodeling.

14. **Which of the following is not true about cardiac muscles?**

- A: Their cells have multiple nuclei.
- B: Their cell shape is branched.
- C: Their contraction is spontaneous.
- D: They have regular stripes.

15. **When calcium ions are released from sarcoplasmic recticulum they bind with _____ during muscle contraction:**

- A: Troponin
- B: Tropomyosin
- C: Sarcolemma
- D: Cytosol's ions

16. **Which of the following statement about an arthropod exoskeleton is incorrect?**

- A: It permits gaseous exchange.
- B: It contains joints, it form joints.
- C: It provide muscle attachment.
- D: They lack sensation.

17. **The repeated protein pattern of myofibrils is called?**

- A: Sarcomere
- B: Zyomere
- C: Sarcolemma
- D: Cross Bridges

18. **Which of the following fins in the fish body are paired?**

- A: Dorsal and ventral
- B: Pectoral and pelvic
- C: Tail fins
- D: All of the above

19. **Which of the following muscles have regular stripes?**

- A: Smooth
- B: Cardiac
- C: Skeletal
- D: Both A and C.

20. **Which of the following cells are involved in soft callus formation?**

- A: Fibroblast and osteoblast
- B: Osteoclast
- C: Osteobalst and osteoclast
- D: Chondrocytis

TEST 4

1. **How many muscles are there in the human body?**

- A: 250
- B: 350
- C: 550
- D: 650

2. **Waterproof surfaces such as cuticle of leaf and protective covering of an insects body is :**

A: Phospholipids
B: Waxes
C: Terpenoids
D: Acyl glyceroids

**3. Which one of the following is not a paired facial bone?**

A: Nasal
B: Palatine
C: Maxilla
D: Vomer

**4. Epinasty is controlled by which of the following?**

A: Gibberellins
B: Abscisins
C: Auxins
D: Both B and C.

**5. In which of the following joint the muscles are arranged in the same plane as that of the joint?**

A: Between tibia and fibula
B: Between clavicle and sternum
C: Between humerus and scapula
D: Between femur and tibia

**6. Microcephaly, the small sized skull is caused by?**

A: Genetic factors
B: Harmonal factors
C: Nutritional factor
D: None of these

**7. Fin thread like extension of cell membrane is called**

A: Cilia
B: Flagella
C: Pilli
D: Hair

**8. Which one of the following is an example of a non-elastic connective tissue?**

A: Ligaments
B: Tendon
C: Muscles
D: None of these

**9. Each muscle fibre is surrounded by a membrane which is called:**

A: Sarcolemma
B: Twitch fibre
C: Sarcomere
D: Capsule

**10. The place of attachment of leaf with the shoot is called?**

A: Pith
B: Pulvinus
C: Pit
D: Ecdysone

**11. Which of the folowing vertebrates have fish like body?**

A: Reptiles
B: Aves
C: Amphibians
D: Mammals

**12. The length of myofibril from one Z-band to the next one is called ?**

A: Sarcomere
B: Sarcolemma
C: Sarcoplasm
D: Muscle fibre

**13. Which of the following animals uses setae and muscles for their locomotion?**

A: Cockroach
B: Snail
C: Earthworm
D: Star fish

**14. Which of the following bones are present in pectoral girdle?**

A: Clavicle
B: Scapula
C: Suprascapula
D: All of the above.

**15. Which of the following hormone is responsible for bone weakening in older women?**

A: Progesterone
B: Estrogen
C: Parathyroid hormone
D: Calcitonin

**16. Epicuticle part of exoskeleton is made up of which of the following?**

A: Glycocalyx
B: Waxy lipoprotien
C: Polycasscahrides
D: Glycocalyx

**17. What is the main function of cross bridges in myosin?**

A: They provide support to muscles
B: They produce lactic acid.
C: They link thick and thin myofilaments together during expansion.
D: They link thick and thin myofilaments together during contraction.

**18. The calcium ion released during muscle fibre contraction attach with ?**

A: Myosin
B: Actin
C: Tropomyosin
D: Troponin

**19. Which of the following may be a reason for a cramp?**

A: Deficit of ATP.
B: Drop in PH
C: High blood sugar level.
D: Electrolyte depletion.

**20. When more energy is required for muscle contraction then that energy can be produced by _____ as a secondary source.**

A: Glucose
B: Fructose
C: Phosphocreatine
D: Lactic acid

COORDINATION & CONTROL
TEST 1

**1. Overactivity of sympthatic nervous system causes ?**

A: Disturbance in vision
B: Constipation
C: Decrease in blood pressure
D: Increase in heart rate

**2. Which part of central nervous system controls reflex action below neck?**

A: Hindbrain
B: Hypothalamus
C: Spinal cord
D: Brain stem

**3. Which one of the following produces Gastrin and secretin ?**

A: Pancreas
B: Ovary
C: Adrenal gland
D: Gut

**4. Deficiency of insulin leads to ?**

A: Diabetes mellitus
B: Diabetes insipidus
C: Diabetic ketoacidosis
D: All of above

**5. Which of the following is not a part of the hind brain?**

A: Cerebral cortex
B: Medulla
C: Pons
D: Cerebellum

**6. What is a normal resting membrane potential of a Neuron?**

A: -50mv
B: -60mv
C: -70mv
D: -80mv

**7. Which part of the neuron contain nissl's granules?**

A: Axoplasm
B: Mylein sheath
C: Dendrite
D: Soma

**8. Which one of the following plant hormone is the only promoter of leaf senescence?**

A: Gibberellins
B: Cytokinins
C: Auxins
D: Abscisic acid

**9. Which of the following transmits nerve impulse from receptor to central nervous system?**

A: Sensory neuron
B: Motor neuron
C: Associative neuron
D: All of the above

**10. Which one of the following glands is refered to as master gland ?**

A: Parathyroid gland
B: Thyroid gland
C: Adrenal gland
D: Pituitary gland

**11. Which of the following has no central nervous system?**

A: Hydra
B: Man

C: Planaria

D: None of these

**12. How many pairs of cranial nerves are present in humans?**

A: 10

B: 11

C: 12

D: 13

**13. Which of the following are responsible for the detection of changes in environment?**

A: Receptors

B: Neuron

C: Effectors

D: All of these

**14. Gibberellins may be substituted for ____ light ,therefore promote flowering in long day plants?**

A: White

B: Red

C: Blue

D: Green

**15. The right and left cerebral hemispheres are connected by a thick band of nerve fibres called?**

A: Medulla

B: Corpus Callosum

C: Pons

D: Hippocampus

**16. Concentration of cell bodies of neurons in the peripheral nervous system are called?**

A: Cerebral

B: Glands

C: Cardinals

D: Ganglia

**17. Normal action potential of a neuronal cell is?**

A: +50mv

B: +60mv

C: +70mv

D: +80mv

**18. Which one of the following is the largest part of the human brain?**

A: Thallamus

B: Cerebellum

C: Medulla oblongata

D: Cerebrum

**19. Which structures respond when they are stimulated by impulses coming through motor neurons?**

A: Receptors

B: Pesponses

C: Effectors

D: Transduction

**20. Reticular formation is present in?**

A: Forebrain

B: Midbrain

C: Hindbrain

D: Spinal cord

1. **Neurosecretory cells are present in which part of brain?**

A: Hypothalmus
B: Midbrain
C: Pons
D: Cerebellum

2. **The part of brain which controls breathing, heart rate and swallowing is:**

A: Cerebrum
B: Cerebellum
C: Hypothalamus
D: Medulla

3. **Which fibres take impulse towards the cell body?**

A: Dendrites
B: Nissl's granules
C: Cytoplasm
D: Golgi apparatus

4. **Which of the following connects the spinal cord to the brain?**

A: Spino connector
B: Pons
C: Vortex
D: Medulla

5. **Which of the following is the function of glucagon ?**

A: Glycogen --> glucose
B: Glucose --> glycogen
C: Glucose --> lipid
D: Glucose --> proteins

6. **Which one of the following is a Principle mineralo-corticoid?**

A: Cortisol
B: Cortisone
C: Aldosterone
D: Androgens

7. **The process which manifest itself by adaptive changes in individual behaviour as a result of experience is called?**

A: Instinct
B: Learning
C: Behaviour
D: Habituation

8. **Which one of the following receptor perceive the sensation of cold and warmth?**

A: Free nerve endings
B: Stray endings
C: Undifferentiated endings
D: Electromagenatic receptors

9. **The number of cranial nerves in humans is:**

A: 12 pairs
B: 31 pairs
C: 24 pairs
D: 62 pairs

10. **L-dopa or levodopa is used to get some relief from:**

A: Epilepsy
B: Parkinson's disease
C: Alzheimer's disease
D: Dementia

**11. Which of the following are effectors?**

A: Muscles
B: Gland
C: Nissel granules
D: Both A & B

**12. Alpha cells of islets of langerhans secrete hormone called:**

A: Glucocorticoid
B: Insulin
C: Glucagon
D: Aldosterone

**13. Biorhythms shows periodicity of about ?**

A: 20 hours
B: 22 hours
C: 24 hours
D: 26 hours

**14. Vasopressin amd oxytocin are released from the:**

A: Placenta
B: Ovary
C: Anterior pituitary
D: Posterior pitutary

**15. The structures which respond when they are stimulated by impulse coming through motor neuron are:**

A: Effectors
B: Receptors
C: Responsers
D: Transducers

**16. Addison's disease is caused by the destruction of ?**

A: Adrenal cortex
B: Pituitary adrenal axis
C: Adrenal medulla
D: Hypothalamus

**17. Which of the following of part of central nervous system is present inside the vertrbral column?**

A: Hind brain
B: Brain stem
C: Spinal cord
D: Medulla

**18. Chlorosis i.e yellowish hue on the leaves results from ?**

A: Intense sunlight
B: Deficiency of chlorophyll
C: Deficiency of water in soil
D: All of these

**19. Hormones produced by adrenal medulla are?**

A: Adrenaline and Nor adrenaline
B: Insulin and glucagon
C: Cortisol and aldosterone
D: Gastrin and secretin

**20. Decline in brain function occurs in which of the following disease?**

A: Parkinson disease
B: Epilepsy
C: Alzheimer's disease
D: All of the above

TEST 3

**1. Which of the following group of hormones is made up of amino acid and its derivatives ?**

- A: Vasopressin and antidiuretic hormone
- B: Epinephrine and non epinephrine
- C: Oestrogen and testosterone
- D: Insulin and glucagon

**2. What is the chemical nature of auxin ?**

- A: Indole propionic acid
- B: Indole carboxylic acid
- C: Indole acetaldehyde
- D: Indole acetic acid

**3. A neurological condition characterized by involuntary tremors, diminished motor activity and rigidity is called ?**

- A: Epilepsy
- B: Parkinson's disease
- C: Alzheimer's disease
- D: Cerebellar tumours

**4. Which of the following is true about the active membrane potential in the neurons?**

- A: Inner side is more positive than the outer side.
- B: Inner side is more negative than the outer side.
- C: Inner and outer sides have same charge.
- D: Active membrane potential is same as the rest membrane potential.

**5. Which one of the following part act as thermoregulator?**

- A: Cerebrum
- B: Cerebellum
- C: Thalamus
- D: Hypothalamus

**6. Myelin sheath surrounding neuron fibers is primarily made of ?**

- A: Carbohydrates
- B: Protein
- C: Fats
- D: Lipids

**7. Which of the following hormone cause delay in aging of fresh leaf crops?**

- A: Auxin
- B: Cytokinin
- C: Ethene
- D: Abscisic acid

**8. Which of the following parts of the brain controls precise muscular movement?**

- A: Cerebrum
- B: Cerebellum
- C: Thalamus
- D: Medulla

**9. Hormone/s produce by hypothalamus is/are?**

- A: Thyroid stimulating hormone
- B: Oxytocin and antidiuretic hormone
- C: Oxytocin and somatotrophin hormone
- D: Antidiuretic hormone

**10. What is the major constituent of birth control pill ?**

A: Oestrogen
B: Androgens
C: Progesterone
D: Secretin

**11. Which part of the brain control intelligence?**

A: Thalamus
B: Hypothalamus
C: Cerebellum
D: Cerebral cortex

**12. Which one of the following is effect of sympathetic nervous system?**

A: Constriction of bronchi
B: Decrease in heart rate
C: Promotion of digestion
D: Dilated pupil

**13. Insufficient secretion of iodothyroxine in adults causes?**

A: Cretinism
B: Myxoedema.
C: Goiter
D: Exopthalmic goiter

**14. High levels of Aluminium may contribute to the onset of ?**

A: Parkinson's disease
B: Epilepsy
C: Alzeihmer's disease
D: Gonorrhea

**15. Hormones produce their actions by ?**

A: Regulating enzymatic reactions
B: Initiating enzymatic reactions
C: Initiating chemical reactions
D: All of the above

**16. Which of the following statement is true regarding resting membrane?**

A: Sodum ions have higher concentration inside neurons.
B: Sodium ions have higher concentration outside neurons.
C: Potassium ions have same concentration inside and outside neurons.
D: Potassium ions have higher concentration outside neurons.

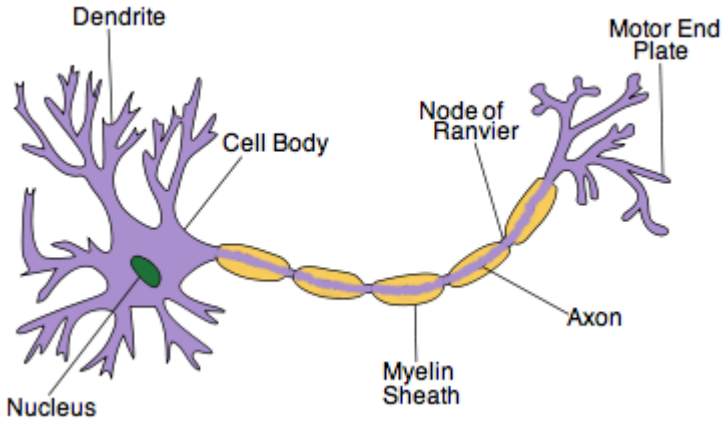
**17. Cell membrane under resting condition is impermeable to all the ions except ?**

A: $Na^{+}$
B: $K^{+}$
C: $Mg^{+2}$
D: $Ca^{+2}$

**18. Which of the following statement regarding the resting membrane potential is correct?**

A: Outer surface of the neuron is more positive
B: Inner surface of the neuron is more positive
C: At rest potential, neurons are equally charged inside and outside.
D: At rest potential inner and outer surface continuously switch between positive and negative charge.

**19. The figure below shows what kind of neuron?**




- A: Sensory
- B: Associative
- C: Motor
- D: None of the above

**20. What is the primary function of meninges?**

- A: Transmit neuro signals.
- B: Control potential across neurons.
- C: Provide nutrition to the brain and the spinal cord.
- D: Protect the brain and the spinal cord.

TEST 4

**1. Which of the following is controlled by hypothalamus?**

- A: Menstrual cycle
- B: Water balance
- C: Body temperature
- D: All of the above.

**2. Hippocampus plays an important part in?**

- A: Intelligence
- B: Feeling of pleasure.
- C: Learning
- D: Touch sensation

**3. What type of sensory structure carrying the touch sensations are present in papillae extending into ridges of the fingertips?**

- A: Nerve ending at the base of hair
- B: Meissner's corpuscles
- C: Pacinian corpuscles
- D: Thermoreceptors

**4. The part of neroun fibers which conducts impulses away from the cell body is:**

- A: Dendron
- B: Dendrites
- C: Peripheral branch
- D: Axon

**5. Which of the following statement is not true?**

- A: Relative abundance of receptors differ greatly.
- B: Hair end organs receive touch stimulus.
- C: Receptors are distributed evenly over the entire surface of the body.
- D: Receptors in the skin are the endings of sensory neurons.

**6. Which of the following ions are involved in the transmission of nerve impulse?**

A: $Ca^{++}$

B: $K^{+}$

C: $Mg^{++}$

D: $Na^{+}$

**7. The cytoplasmic fibres that takes impulses away from cell body are called?**

A: Dendrites

B: Axons

C: Cytoplasmic carrier

D: Both axons and dendrites may take impulse away from the cell body.

**8. Grey matter of spinal cord consist of?**

A: Myelinated fibres and cell bodies

B: Non-myelinated fibres and cell bodies

C: Myelinated fibres only

D: Cell bodies only

**9. Which of the following is a correct sequence of reflex arc?**

A: Receptor -> Motor neuron -> Sensory neuron -> Effector

B: Sensory neuron -> Motor neuron -> Effector -> Receptor

C: Receptor -> Sensory neuron -> Effector -> Motor neuron

D: Receptor -> Sensory neuron -> Motor neuron -> Effector

**10. Chemically how many types of hormones are there?**

A: 2 types

B: 3 types

C: 4 types

D: 5 types

**11. What type of sensation is caused by nociceptors?**

A: Touch

B: Temperature

C: Pressure

D: Pain

**12. Onset of epilepsy is usually before the age of ?**

A: 20

B: 30

C: 40

D: 50

**13. Which of the following is the function of glucagon hormone?**

A: Glucose --------> lipids

B: Glucose ----------> Proteins

C: Glucose -------> Glycogen

D: Glycogen -------> Glucose

**14. Abscisic acid promotes flowering in short day plants and inhibits in long day plants. Which of the following is anatgonistic to abscisic acid in terms of flowering?**

A: Gibberellins

B: Cytokinins

C: Auxins

D: Ethene

**15. Neurotransmitter secreted at synapse outside CNS is :**

A: Dopamine

B: Polypeptide

C: Androgen

D: Acetylcholine

**16. Parkinson's disease is caused by death in brain area that produces?**

A: Serotonin

B: Epinephrine

C: Dopamine

D: Histamine

**17. Microscopic gaps between the neurons are called ?**

A: Transmitters

B: Synapses

C: Pores

D: Nodes

**18. Gastrin is a hormone which is produced by the:**

A: Liver

B: Adrenal gland

C: Mucosal lining of intestine

D: Pyloric region of stomach

**19. Excess of somatotrophin hormone in early life leads to ?**

A: Acromegaly

B: Gigantism

C: Dwarfism

D: Small stature

**20. Hormone produced by median lobe of pituitary gland is**

A: Melanophore stimulating hormone

B: Antidiuretic hormone

C: Somatotrophin hormone

D: Thyroid stimulating hormone